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STRATEGIC BOMBING IN THE EUROPEAN
THEATER OF OPERATIONS DURING WORLD WAR II:
EXPERIMENT AND CONCLUSION

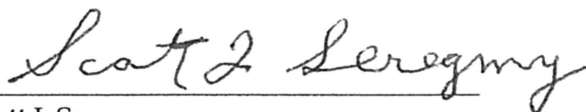
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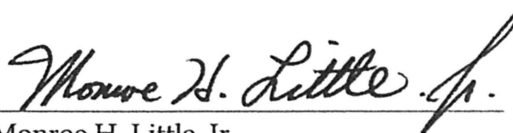
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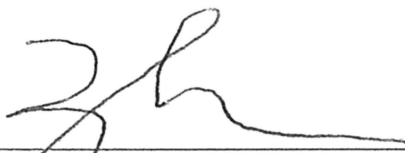
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Introduction

It has been estimated that only twice in recorded history has the total human population in the world actually declined. The second episode occurred because of World War II. Fifty-six years after the cessation of hostilities the passions engendered during the conflict still burn brightly. The Enola Gay exhibit at the Smithsonian Museum in Washington, D.C. is one example. Several veterans' organizations protested vehemently against what they perceived as an inaccurate portrayal of Japanese actions during the war. Interest in the war years seems to be waxing. Recent movies such as "Schindler's List", "Saving Private Ryan", and "Pearl Harbor" each deal with different aspects of World War II and all have enjoyed tremendous commercial success. The Holocaust Museum has been recently added to the National Mall and plans have finally been approved for a new memorial to veterans of the war.

From an historical perspective, perhaps one of the most heated debates concerns the Allied strategic bombing offensive. From modest beginnings at the end of World War I and later during the Sino-Japanese and Spanish Civil War, by mid-1945 airpower had blossomed into a deadly reality. Early proponents of strategic bombing envisioned the abolition of total war. Their bitter experiences during the Great War forced them to seek some other means with which to wage wars. The pointless slaughter of millions of men in the mud of northern France was to be avoided at all costs. Military planners saw in the airplane a new technology that would achieve victory outright or at least in a very short time frame by bringing the horrors of war directly to the

home front. They were convinced that the physical and psychological impact of unrestrained bombing on civilians and cities would be so horrible that no belligerent would be able or willing to engage in a prolonged war of attrition. The German, British, and American bombing campaigns were conducted according to theories postulated during the interwar years.

The results observed during the experiment of strategic bombing have been interpreted differently. One position is that the bombing was absolutely critical for the successful prosecution of the war. The British and American strategic air attacks eroded the Nazis' industrial base, redirected and reduced critical resources, and weakened the will to fight among both German civilians and military personnel. In opposition is the more recent interpretation that strategic bombing not only was a waste of talent and effort but was immoral as well. The British and Germans were able to overcome the inconvenience of sporadic raids to achieve a huge increase in the production of war material. The destruction of precious works of art, historically rich cities and towns, and the death of civilians cannot be justified according to modern standards of morality. Indicative of this position is historian Michael Sherry who characterizes strategic air operations in World War Two as, "the sin of atomic bombing, the sin of the whole war's bombing."¹

The intent of this paper is to examine with as little prejudice as possible, the evolution of strategic bombing from conception to actualization. The reasons why certain decisions were implemented and both the good and bad consequences will be examined. As in any human endeavor, both wisdom and folly played a substantial role. The scope of actions examined will be

¹ Michael Sherry. The Rise of American Air Power: The Creation of Armageddon. (New Haven, Conn.: Yale University Press, 1987). P. 363.

limited mainly to the European Theater of Operations between the years 1939 to 1945. A discussion of the theory of strategic bombing however necessitates the study of documentation written during the latter stages of World War I. Similarly, the observations and study of actual air operations will extend to the conclusion of fighting in the Pacific.

Perhaps one reason strategic bombing generates such conflicting opinions is due to the serious and frightening nature of the topic. It is very unsettling to live in a world where one's own existence is continually at risk. The basic need for security has driven countries into conflict with each other since the beginning of civilization. The Strategic Defense Initiative and the proposed abrogation of the 1972 Anti-Ballistic Missile Treaty have once again brought into focus the question of security from strategic attack. The air offensives of World War II were the first large-scale experiments testing the doctrine of strategic bombing. It is important to know what happened the last time unproven military theory was applied to real world situations.

FORMULATION OF STRATEGY

Rarely in history has a new theory of warfare been embraced with such fervor as that of strategic bombing. Beginning with the Zeppelin raid on January 19, 1915, thirty years elapsed before the concept of explosives delivered via the atmosphere onto any part of the globe became reality. The trials and errors necessary before reaching that point were arduous and bloody. The six years of World War II were the cauldron in which theories of aerial bombardment were first tested, refined, and then metamorphosed into the ultimate weapon, universal fear. The exigencies of armed conflict compressed the time necessary to perfect the new techniques and to realize their full potential.

It has been claimed that terror bombing is simply the continuation of a long-term trend in attempting to frighten and starve an enemy. Whereas earlier warriors fell upon their foes, “with painted bodies and hideous screams, poisoning wells and besieging towns, their more sophisticated though hardly more civilized successors rain high explosives on factories and homes and set fire to whole cities.”² The conventional perspective is that the strategic air campaigns of World War II were only a tertiary component of the conflict. The purpose of the following is to examine the argument put forward by airpower proponents: strategic bombing alone can achieve the de facto abolition of total war.

British Field Marshall Jan Smuts wrote about the airplane in August, 1917 that, “there is absolutely no limit to the scale of its future independent

war use. And the day may not be far off when aerial operations with their devastation of enemy lands and destruction of industrial and populous centers on a vast scale may become the principal operations of war, to which the older forms of military and naval operations may become secondary and subordinate.”³

The best known American advocate of military aviation was General Billy Mitchell. As a brash young major in May 1917, his perceptions were formulated during reconnaissance missions flown over the mud and squalor of the trenches. He noted that, “we could cross the lines in a few minutes in our airplane, whereas the armies had been locked in the struggle, immovable, powerless to advance, for three years.”⁴ The plethora of ideas, position papers, proposals and recommendations generated by Mitchell were abruptly dismissed. Even the sinking by aircraft of the captured battleship *Ostfriesland* and the obsolete *Alabama*, failed to impress his superiors. Mitchell’s persistence bordered on insubordination and soon came to be perceived as a threat to the chain of command as his arguments became more strident and belligerent in tone. He was court-martialed in 1925 and subsequently resigned from the Army. To an America recoiling from the horrors of static warfare, the notion that, “the entire nation is, or should be, considered a combatant force,”⁵ was simply too much.

Although Mitchell’s voice had been stilled, his ideas found pockets of fertile soil in the intellectually stony ground of post-World War One America.

² Peter Calvocoressi, Guy Wint, and John Pritchard, Total War: The Causes and Courses of the Second World War. (London, England: Penguin Books, 1989), p. 512.

³ David Mac Isaac, Strategic Bombing in World War Two: The Story of the United States Strategic Bombing Survey. (New York: Garland Publishing, 1976), p. 4.

⁴ David. Nevin, Architects of Air Power. (Alexandria, Virginia: Time Life Books, 1977), p.52.

⁵ Ibid., p. 57.

The United States had been protected from birth by two gigantic moats; the Atlantic and Pacific Oceans. There was the fear however, that someday an enemy could launch a seaborne assault. National defense under such a scenario would fall entirely on the shoulders of the navy. The citizenry demanded that a hostile fleet be intercepted and destroyed long before American soil became a battleground. The army would have no option except to wait for an actual landing before being able to contribute to the task of defending the homeland. The navy would leap ahead in terms of importance and prestige and of course, in funding. To the Army, taking a back seat to the navy was clearly unacceptable. It was with intense interest that certain members of the Army's leadership observed the results of Mitchell's demonstration bombings.

The opportunity to expand, or at least, to maintain equilibrium with their rival service, manifested itself among Army officers in the guise of a bomber. The B-17 was designed to carry heavy ordnance on long range missions. Its task was to fend off any type of hostile naval expedition while an enemy was still far out to sea. Unfortunately for the army, there were no nearby countries in the entire Western Hemisphere that presented the necessary threat to U.S. interests. In order to justify the development of the B-17, the army brass forwarded the argument that the space above the oceans was not exclusively the domain of the navy. Planes would be necessary not only for aerial observation over land, but for reconnaissance and target acquisition and the tracking of hostile ships at sea. Speed and the availability of coast based airfields allowed the observation of potential enemy movements far in advance of an actual landing. A four-engine bomber was necessary in order

to maximize the flight time needed for reconnoitering and to carry heavy enough bombs to sink large capital ships.

It was much easier to persuade the army to adopt the new weapon because Mitchell had not focused his criticism on his peers but against the “hide bound admirals.” Eventually it was the fear that the navy would grow at its expense that convinced the generals to experiment with the idea of a heavy bomber force. Air operations were to be strictly under army control and accordingly, the enterprise was named the Army Air Corps. Thus, the combination of a perceived threat and interservice competition created the first component of a nascent strategic air force. Protecting its interests in the wake of a new technological development, the army laid the foundation for a weapon that would change the world.

A contemporary of Billy Mitchell was a British General named Hugh Trenchard. He shared not only the fiery temperament of Mitchell, but the same vision for the use of air power. Trenchard’s convictions arose from experience gained both before and during the Great War. He was in the first class of the Central Flying School in Upavon, England in 1912. In the same year, he flew as an observer during maneuvers and recalled, “how vulnerable the cavalrymen looked and how far out of place they were.”⁶ By 1915, he began to argue against the forces of conservatism for an expanded role for aircraft beyond that of artillery spotter. The stalemated trench warfare along the Western Front convinced him that, “the airplane was a superb offensive weapon.”⁷ He diagrammed the tactics necessary to prevail in plane to plane dogfights and also foresaw the opportunity for aerial bombardment. He

⁶ Ibid., p. 22.

⁷ Ibid., p. 26.

became convinced that British aircraft, “would need not only machine guns but bombs.”⁸

Trenchard has rightly been described as the father of the Royal Air Force. There is little disagreement that his determination and British bulldog tenacity served him well in espousing the creation of a brand new branch of the military. The difference between Trenchard and Billy Mitchell is that the former gained a powerful ally in the person of Winston Churchill. Both Trenchard and Churchill were headstrong and prone to loud arguments and debate but the potential of air power and the Zeppelin attacks on London during World War I created common ground.

In 1918, Churchill was able to guide their plan for an R.A.F. through the necessary government institutions for approval and funding. First the Prime Minister, then the Cabinet, and finally the House of Commons acquiesced in the formation of an independent air force that not only would work with the Army and Navy, but would, “become more and more the predominating factor in all types of warfare.”⁹ Twenty years later, Trenchard and Churchill’s foresight saved England from the clutches of Nazi Germany and helped end the myth of Hitler’s invincibility.

The Royal Air Force had the advantage of independence from birth and did not have to worry to the same degree about antagonizing its older siblings. The major military threat to the home island, however, was vastly more ominous. Great Britain’s moat was only thirty miles wide and several of her major population centers and factories were within range of an unrepentant and, by the late 1930s, an increasingly bellicose Nazi Germany. London is spread out along both sides of the easy to identify Thames River.

⁸ Ibid., p. 24.

⁹ Ibid., p. 33.

Flying to and bombarding such a target required only minimal navigation skills and unsophisticated equipment. British naval bases were more dispersed into harder to reach rural areas and were much better defended than the cities. Most civilian ports however, were surrounded by their host city. Fighters for defense and heavy bomber retaliation became a most important military and political issue. Not as wealthy and considerably more vulnerable than America, the British committed a far greater proportion of defense spending to aircraft development. The consequences of such diligence served Britain well in the coming crisis.

Although the United States and Great Britain would assemble a truly strategic bombing force during World War II, it was a little known Italian named Giulio Douhet who laid the philosophical foundation for the employment of military aviation during the early phases of the Second World War. After having seen a grand total of three primitive airplanes, he wrote in 1910 that, "the sky too is to become another battlefield no less important than the battlefields on land and sea. For if there are nations that exist untouched by the sea, there are none that exist without the breath of air."¹⁰ The term airpower was defined as the, "use of space off the surface of the earth to decide war on the surface of the Earth."¹¹ His insistence that the Army and Navy recognize the Air Force as a legitimate contender for attention and funding resulted eventually in a Billy Mitchell style court-martial. After serving time in prison for excessive criticism of inadequacies in the Italian armed forces, he fought back with his pen publishing Command of the Air in 1921. He claimed that he, "did not prophesy then and I do not prophesy

¹⁰ Ibid., p. 18.

¹¹ Giulio Douhet. The Command of the Air. (Washington, D.C.: U.S. Office of Air Force History. 1983). Introduction.

now.”¹² Rather, it was the exercise of cold logic and mathematical calculations that permitted the future of wars to be discerned. In his book, he postulated that, “the aeroplane was pre-eminently an offensive weapon with no practical way of preventing the enemy from attacking us with his air force except to destroy his air power before he has a chance to strike at us.”¹³ The first rule was to attack en masse at the very earliest moment; perhaps even before a state of war had been formally declared. The bomber force must already be constructed and in full operation before hostilities began due to the overwhelming advantage accruing to the offense. There would not be enough time to mobilize sufficient resources to create an independent air force from scratch. Douhet speculated that the battle required to attain command of the air would be as short as three days. Defensive measures would be superfluous and even harmful. Anti-aircraft guns would have to be so concentrated and numerous that no nation could afford to build the hundreds of thousands necessary to offer even a modicum of protection. Pursuit planes might harass an attacking force but not completely halt the onslaught. Friendly fighters would mitigate enemy defensive measures by sweeping ahead of the bombers to clear a path. Fighters were to be heavily armed with machine guns and fly in close formation to provide fields of interlocking fire. Armor plating was to be incorporated to shield fuel tanks and crewmen.

Employing aircraft for any other purpose such as naval reconnaissance or to supply troops in the field was considered wasteful and even defeatist to Douhet. He believed that all efforts must be directed to placing as many bombers over enemy targets as possible. Patrolling aloft waiting for the

¹² Ibid., p. 26.

enemy to appear was a waste of fuel and gave a crucial advantage to the opposition. The only defense was to destroy an opponent's air force at its home base and bomb the factories that manufactured their aircraft.

According to Douhet, after eliminating the threat of counterattack and gaining air superiority, the next phase of an air war was to be, "a succession of hammer blows, also of great violence, delivered against his cities, with objectives his industries, his communications and above all his civilian morale."¹⁴ Douhet noted that in World War One, still called the war to end all wars during his lifetime, Germany was defeated even though none of the ground campaign was conducted on German soil. Germany's cities and industrial centers remained unscathed and even her fleet was largely intact. Great expense and effort had been directed towards building a force of dreadnoughts and heavy cruisers to challenge Great Britain's supremacy at sea. Besides the relatively minor and inconclusive Battle of Jutland, the surface navy spent the war years bottled up in port. Douhet concluded that if the German navy could be forced to surrender after only one skirmish, certainly an aerial bombardment of high explosives, incendiaries, and poison gas would demoralize the civilian population. The decisive finale would be executed by long range heavy bombers "which, by striking massive blows at the very heartland of the enemy would rapidly reduce his cities to ruins, his people to despair and his government to capitulation."¹⁵

Douhet was convinced that the doctrine of strategic bombing would avoid the madness of trench warfare that had left such an indelible scar upon the psyches of an entire generation of Europeans. He believed the level of

¹³ Constantine FitzGibbon, London's Burning. (New York: Ballantine Books, 1970), p. 11.

¹⁴ Ibid.

destruction unleashed from 1914 to 1918 would be easily surpassed and occur in a dramatically reduced timeframe during the next war as technology improved the effectiveness of both aircraft and armaments. A major reason was the expansion and inclusion of the private sector into military manufacturing. Private companies benefited from the stability of government contracts which allowed the financing necessary to experiment with new ideas.

Douhet also speculated that it would be necessary to create a supreme command to coordinate activities among the three branches of the armed services. Every aspect of the defensive posture of a country had to be considered and intelligently directed. Not only must an independent air arm be established, but its mission and operation had to be synchronized with the Army and Navy. The older components were still important for protection and to secure victory but command of the air became the first, absolute priority. No ship or harbor was safe from aerial attack nor were soldiers on the battlefield. Resupply, reinforcements and troop movements became impossible without air superiority. The new strategy was for ground forces to delay and hold the enemy for as long as possible in order to gain the advantage in the air. It would be critical to accomplish the task in the shortest amount of time possible because once achieved, the belligerent that gained command of the air would not lose it. Any attempt to rebuild an offensive strike capability would be doomed to failure. Factories and airfields would lie defenseless and open to destruction at whatever moment the victor deemed opportune.

Although portraying total war with “no distinction any longer

¹⁵ Noble Frankland, Bomber Offensive: The Devastation of Europe. (New York: Ballantine Books, 1970), p. 12.

between soldier and civilians,"¹⁶ Douhet believed such future conflicts would be more humane because, "they may in the long run shed less blood."¹⁷ It was calculated that, "ten planes, each carrying two tons of incendiaries, high explosives, and poison gas, could destroy everything within a circle of five hundred meters diameter."¹⁸ A key assumption was that a bomber or "unit of bombardment" as he called it, must be able to eliminate the target after only one attack. Using such logic, a force of only three hundred and sixty bombers could completely level a city the size of London in one massive blow. Douhet did not offer firm estimates of the number of potential victims that would be killed by such an action versus a protracted war of attrition. After witnessing the slaughter of millions of men for the possession of a few miles of mud however, he must have assumed that even the destruction of London would be less bloody than another episode of trench warfare.

Wars used to be fought in the field between opposing groups of armed men. The oceans were also battlegrounds as competing fleets of ever more powerful ships endeavored to sink each other, keep open lines of supply and communication, and exercise freedom of action. The introduction of aerial warfare subordinated the military to an "intermediate means between opposed national wills; and behind them is no longer the vacuum of passivity and resignation, but entire populations with all their material and moral

¹⁶ Conrad C. Crane, Bombs, Cities, and Civilians. (Lawrence, Kansas: University Press of Kansas, 1993), p.12.

¹⁷ Ibid.

¹⁸ FitzGibbon. London's Burning. p. 11.

resources.”¹⁹ Land and naval forces had always acted indirectly against an enemy’s national resistance but aircraft overcame the old barriers of geography.

Douhet summarized his theory claiming that, “to bend the enemy’s will, one must put him in intolerable circumstances; and the best way to do that is to attack directly the defenseless population of his cities and great industrial centers.”²⁰ Douhet believed the next great power war would be very intense, offensive and short in duration. “Cemeteries would undoubtedly grow larger, but not as large as they became before the peace was signed at Versailles.”²¹

The acceptance of Douhet’s thesis by the British was, to a certain extent, predicated on actual experience. It was a reflection of the consternation created by the unrestricted bombing of civilian population centers during the Great War. From 1914 to 1918, the British Empire suffered battle deaths of 908,371 with 2,090,212 wounded.²² In comparison, 557 civilians were killed and 358 injured as a result of German airship raids.²³ Despite the huge discrepancy, the fear of the unknown, the feeling of helplessness and the loss of security convinced public officials to conceive of some form of protection against terror bombing. With voters facing the same prospect of death as front line combat soldiers, the British government established the R.A.F. in April 1918. The purpose was twofold; to protect the civilian population and to carry the war to the enemy. Other countries had their indigenous advocates of adapting the airplane to useful military applications; most laying claim as the father of their particular air force. But England had first faced

¹⁹ Douhet. Command of the Air. P. 279.

²⁰ Ibid., p. 282.

²¹ Ibid.

²² Encyclopedia Britannica. Macropaedia Volume 29. p. 1008.

²³ Douglas Botting, The Giant Airships. (Alexandria, Virginia: Time Life Books, 1981), p. 73.

the threat and then the reality of aerial bombardment and thus was the leader in incorporating the radical new ideas of the day into positive action.

Clearly, aircraft introduced an entirely different form of warfare to the world. Much more was now at risk for non-belligerents, especially for the islanders of Great Britain. The twenty-two mile wide moat protecting them since 1066 and the vast navy and army assembled to fight enemies 'overseas,' suddenly seemed inadequate. In previous centuries, a city that was susceptible to siege would not only field armed forces to repel invaders, but build ramparts and walls for defense. Water, food, weapons, and every other resource required to survive was stockpiled as the citizenry hunkered down behind their fortifications. The modern, sprawling metropolis had no such shield to protect itself from the sword of air attack. To make matters worse, high explosives could now be directed against the very infrastructure that supported both civilians at home and soldiers in the field. Distance from the front became less relevant and every citizen became exposed to death and their property to destruction. The term strategic bombing was introduced to designate the unprecedented extension of military operations. It can be described as, "the massive and systematic bombing of the enemy's war economy and of the enemy population's will to resist."²⁴ It is by definition offensive, "carried on beyond the reach of ground and sea forces and without their immediate and direct cooperation and support."²⁵

By the mid 1930's, the new theory of airpower had been tested on a small scale during the Japanese invasion of China and during the Spanish Civil War. The first two trials could be termed tactical operations as opposed to strategic bombing although the purpose in both instances was to terrorize

²⁴ Kent Roberts Greenfield, American Strategy in World War II: A Reconsideration. (Baltimore, Maryland: Johns Hopkins Press, 1963), p. 88.

the civilian population. The tactical is much more limited in terms of duration and target selection. Strategic implies a more systematic approach designed not only to immediately assist the advancement of an army in the field but to attack the industrial infrastructure supporting military activity. Civilian morale was directly assaulted in China and Spain with the underlying economic system given little, if any, consideration. True strategic bombing can be dated from the beginning of World War II, which now commands our attention.

PRELUDE TO THE FIRST TRIAL

On September 1, 1939, Adolph Hitler unleashed the Wehrmacht against Poland to begin the 'final European civil war.' German strategy was to employ the panzers in a concentrated assault utilizing speed and surprise to as great an extent as possible. The intent was to avoid a repetition of the static trench quagmire of the last world war and the concomitant pointless slaughter of millions of young men. The radically revisionist Nazis were out to avenge themselves for the perceived injustices of the Versailles Treaty. The objective was to overwhelm opposing forces at the point of attack so as to gain as much ground as possible with the fewest casualties.

In blitzkrieg, the role of the Luftwaffe was to, "first achieve air sovereignty over Poland so that German bombers could disrupt the roads and railways. Not only that, but the Luftwaffe was also expected to play a leading part in the battle itself: bombers and dive-bombers, long range and short range fighters, were to harass the ground troops continuously to hammer home the idea that capitulation was the only way out."²⁶ A common misconception in the West is that the Polish frontier was inundated by massive numbers of German bombers that pulverized the entire country. A 1945 study commissioned by the American military academy at West Point surmised that by the summer of 1939, Germany had, "produced a reserve of nearly 100,000 pilots" and had at her "disposal an air strength of 7000 first line machines."²⁷ British sources, "give the Luftwaffe's strength on September 3, 1939 as exactly 4161 first-line aircraft."²⁸ In actuality, "the

²⁶ Cajus Bekker, The Luftwaffe War Diaries. Translated by Frank Ziegler. (New York: Ballantine Books, 1966), p. 7.

²⁷ Ibid., p. 8.

²⁸ Ibid.

daily strength report of operational aircraft, produced by the Quartermaster-General for the Commander-in-Chief Luftwaffe, stated they had at their disposal not more than 1302 first line aircraft.”²⁹ The reason for the discrepancy most likely arose from two sources. The first was the lingering effects of propaganda as to the invincibility of the Nazi war machine and the inevitability of German victory. The second was the accuracy of air attacks especially when executed by Stuka dive-bombers. The uncanny ability to consistently place 500 pounds of high explosives directly onto a target was certainly more efficient than the general targeting of far less deadly artillery. A pilot could visually acquire the objective prior to and during the run and immediately know the results of his efforts. Considering the inexperience of the defenders in coping with such a shocking tactic, the overestimation of the number of aircraft involved is understandable.

After the thirty day conquest of Poland was concluded, the *sitzkrieg*, “sitting war,” in German, “phony war” to the West, settled in. The French retired warily behind the security of the Maginot Line and hoped that if an attack came, it would expend itself upon their expensive and elaborate fixed fortifications. The British also were in denial and wanted to continue believing in the appeasement policy of Neville Chamberlain. The airborne and naval assault against Norway on April 9, 1940 shattered the illusion of a limited conflict and forced France and Great Britain to face the prospect of another world war. Even then, it was not until May 10, 1940, that Winston Churchill was finally installed as the wartime Prime Minister. That same day also signaled the beginning of the German offensive through the Low Countries. Again the Luftwaffe led the invasion with fighter sweeps into Belgium and Holland. Both the French Army and the British Expeditionary Force took the

²⁹ Ibid.

bait and rushed the bulk of their armies north to face the threat. Only after the Allies committed themselves was the main armored thrust launched from the lightly defended Ardennes Forest. The panzers pushed forward quickly over the World War I battlefields slashing through the rear areas and cutting off the forward troops from supplies and reinforcements. The B.E.F. was forced to retreat off the continent via Dunkirk while the French desperately sought an escape out of the trap. After a brief pause to rest and refit, the panzers turned their attention south and completed the conquest of France by late June, 1940.

During the battle, the Luftwaffe fulfilled its mission admirably. Close support for the ground forces was provided to offset the advantage the Allies possessed in number of troops as well as in quantity and quality of armor. The primary French tank, the Char B, was ideally suited for a defensive role, being both more heavily protected and employing a larger caliber gun than every other German competitor except the Mark IV.³⁰ Despite such disadvantages, the blitzkrieg rolled inexorably towards victory as the Luftwaffe swept the skies clean of rivals, destroyed opposing defenses and sowed panic among the rear echelon soldiers and refugees streaming away from the battlefield.

During the First World War, aerial combat was considered a sideshow involving chivalrous knights dueling aloft in the wild blue yonder while armed masses of men struggled to kill each other in the mud. After the passage of only twenty-one years, the airplane had evolved to the point of being the first consideration in any offensive scheme. Without supremacy in the air, troop concentrations were simply killing grounds and large-scale movements of

³⁰ Robert Wernick, Blitzkrieg. (Alexandria, Virginia: Time Life Books, 1977), p. 120.

vehicles, target practice. Far from being a subordinate younger sibling to the army and navy, the air force attained equal consideration in tactics and deployment.

The Luftwaffe had pioneered the techniques soon copied by every other belligerent. However, despite early, overwhelming success, the total war unleashed by the Nazis was to bring catastrophe upon themselves. German theorists had been instrumental in exploiting the capabilities of the airplane but the British had in mind a far greater role for the R.A.F., including heavy bombing of economic targets far beyond the immediate field of combat. The difference in the application of airpower was soon to be vividly demonstrated.

FIRST TRIAL: ENGLAND

In the summer of 1940, it seemed only logical that Great Britain would be next in line to experience the brunt of German aggression. A more thorough analysis however, concludes that prosecuting the military effort against the English should have halted after France capitulated. Mein Kampf, Hitler's manifesto, clearly articulates the destiny of Teutonic Germany as being the elimination of communism and the subjugation of Russian territory for the purpose of providing lebensraum, (living space) for the Aryan race. The elimination of French and British opposition was a prerequisite, not a substitute for Hitler's eastern ambitions.³¹ Hitler, being an opportunist, wanted to wait for the best possible moment to attack the Soviet Union. Gabriel Gorodetsky observed that "Hitler has a tendency sooner or later to revert to the tenets enunciated in Mein Kampf."³² The drift of his ideas were clear enough: "deal with Poland before turning west; deal with France and Britain before turning back to the east."³³

Great Britain was a small island on the far western periphery of Europe and had already been forced into complete retreat from the continent. In the aftermath of the defeat of France, Hitler's gaze turned to Russia. There is little documentation suggesting that Great Britain was to be invaded and occupied. Operation Barbarossa, unlike the events that transpired over England, had been carefully planned. Unknown to most, "on 31st July, 1940, Hitler decided to do that very thing [invade Russia] in the following

³¹ Alan Bullock. Hitler: A Study in Tyranny. (London, England: Odhams Press Limited. 1952). P. 513.

³² Gabriel Gorodetsky. Grand Delusion: Stalin and the German Invasion of Russia. (London, England: Yale University Press. 1999). P. 282.

³³ Bullock., p. 17.

year.”³⁴ The German General Staff, most notably Jodl and Keitel, believed it was possible that 80 to 100 divisions could defeat the Russians in four to six weeks but that “the operation could not be executed before Spring, 1941.”³⁵ The campaigning season was already halfway over and the bulk of the Army was still in France. The logistics of moving millions of troops, thousands of panzers, and the requisite supporting infrastructure across the width of Europe were daunting indeed. Even with the efficient German rail and highway system, the re-deployment eastward would consume too much time and be inadequate within the context of the objectives of Barbarossa. Germany was forced to wait. It was the reality of the military situation and Goering’s boast that he could quickly eliminate the R.A.F. that persuaded Hitler to give the Luftwaffe the opportunity to prove itself in the summer of 1940.

Churchill and Fighter Command assumed that England was definitely the next target and that the Nazis would employ whatever means necessary in pursuit of victory. The devastating raid on Rotterdam served to bolster their opinion and to justify the pessimistic forecasts that had guided civil defense policy during the interwar years. In the course of the First World War, three hundred tons of ordnance were dropped on Britain causing almost 5000 casualties of which one-third were fatal, “giving a figure of sixteen per ton of bombs.”³⁶ Two major daylight raids on London resulted in one hundred twenty-one casualties per ton while the sixteen night raids yielded fifty-two killed and wounded per ton. From such data, the Air Staff in

³⁴ Kenneth Macksey. Panzer Division: The Mailed Fist. (New York: Ballantine Books, 1968), p.63. Parenthesis have been inserted.

³⁵ Gorodetsky., p. 50.

³⁶ As the sources consulted are written either in English or translated into English, the Anglicized version of Hermann Goering’s name will be presented. FitzGibbon.

1924 reckoned that casualties in a future war would be in the nature of fifty per ton of bombs, one-third of which would be fatal. The Committee of Imperial Defense estimated in 1938 that 3,500 tons of bombs would be dropped on London, “delivered by planes based in Germany, within the first twenty four hours of attack, followed by six hundred tons per day.”³⁷ The civil war in Spain confirmed the earlier fifty casualties per ton figure leading the Ministry of Health to project in April 1940 that, “600,000 civilians would be killed and 1,200,000 wounded in the first six months.”³⁸ The forecast was for between 1,000,000 and 2,800,000 hospital beds for the injured depending on the length of stay. Property damage was determined by “adapting a material damage multiplier of 35,000 English pounds per bomb. They concluded that five percent of all property, valued at 550,000,000 English pounds would be destroyed in Britain during the first three weeks of hostilities.”³⁹ The Home Office calculated that, “20,000,000 square feet of seasoned timber would be needed each month to provide coffins.”⁴⁰ It would not be possible to move that quantity of lumber into cities since the roads no doubt would be blocked by debris and flooded by refugees attempting to escape the burning cities.

The contemplated impact of all the death and destruction would leave the survivors emotionally and psychologically debilitated. The Mental Health Emergency Committee operated under the assumption that, “three to one was the ratio between psychiatric and physical casualties, going as high as

London's Burning. p. 12. Included in this footnote are raids conducted by both airship and Gotha bombers.

³⁷ Ibid., p. 13.

³⁸ Ibid.

³⁹ Tom Harrisson, Living Through the Blitz. (New York: Schocken Books, 1976), p. 24. Actual quotes use the symbol for British pound instead of spelling it out.

⁴⁰ Ibid.

4,000,000 mental cases in the first six months of air war.”⁴¹ The estimates assumed a combination of high explosive, incendiary and poison gas ordnance. Although there is no evidence that the Germans ever had any serious intention of using gas, they were very likely dissuaded from its application by the extensive precautions exercised in pre-Blitz London.

Because Britain was a democracy, Douhet’s notion that only offensive air operations would be necessary could not be fully accepted. Due to the political environment, fighters, barrage balloons, anti-aircraft guns and other means were devised to protect the civilian population. Deviating somewhat from Douhet, by 1937 the Minister for the Coordination of Defense insisted that, “priority be given not to Bomber but to Fighter Command.”⁴² The result was that, “three years later, Britain possessed, the most advanced system of air defense in the world.”⁴³

The most important element of the air defense network was the invention and implementation of radar. The fundamental philosophy undergirding its use was that, “no country could afford to keep ‘standing patrols’ of fighters in the air along its frontiers and coasts. The only hope of defeating bombers by fighters lay in identifying the enemy’s course and probable objective at a considerable distance from his target and then converging the airborne defense against the attacking force.”⁴⁴ The element of surprise inherent in the attack was thus totally absent. Several other shortcomings in German equipment, tactics, and leadership were to be revealed in the coming confrontation but it was radar that allowed the R.A.F. to maximize its assets.

⁴¹ Ibid., p. 39.

⁴² Frankland. p. 15.

⁴³ Ibid.

⁴⁴ FitzGibbon. London’s Burning p. 12.

By anticipating and planning for a worst case scenario, not only was London materially prepared to meet the threat but also hardened mentally. At first, “the wish was to keep civilians as dispersed as possible,”⁴⁵ but many evacuees moved back into the city after hostilities began but before the Blitz. The stories of Stuka dive bombers strafing refugees in Poland and the terrorization of undefended Rotterdam had become common knowledge. The British had suffered indiscriminate air attack before and were as ready as humanly possible to withstand, “the first strategic air operation in history.”⁴⁶ Goering’s final directive ordering the destruction of the R.A.F. was officially issued on August 2, 1940 although attacks on British shipping had been in progress throughout that summer. The precise objective was to, “subdue by air power alone a major power with a population resolved to resist.”⁴⁷

Much is made of the fact that the Luftwaffe outnumbered Fighter Command by two to one and therefore the former should have easily gained air supremacy. A closer analysis, however, reveals the flaws in German operations. The number of front line Me-109s available to challenge the British Hurricanes and Spitfires stood roughly equal at seven hundred machines.⁴⁸ The Stukas and medium Dornier and Heinkel bombers had some defensive armament but their guns were too few and of too small caliber to threaten the much more heavily armed and agile English fighters. The Me-110s were designed to provide longer-range escort but proved far too slow and cumbersome. After the first few encounters, it was realized that the twin engine Me-110s also required an escort. That left the Me-109s as the

⁴⁵ Harrisson. p. 35.

⁴⁶ Bekker. p. 203.

⁴⁷ Ibid.

⁴⁸ Adolph Galland. The First and the Last. (New York, New York: Holt Printing House, 1954). P. 61.

only credible challenger to Fighter Command in the most important facet of the battle.

A second major shortcoming was the lack of range endemic among Luftwaffe aircraft. Only the four engine Condor reconnaissance plane displayed an aptitude for long distance flights. German fighter squadrons operating from the nearest point to southern Britain, the Pas de Calais and the Cotentin Peninsula, required thirty minutes to cross the Channel and gain sufficient altitude to effectively shepherd the bombers to their objective. With a tactical flying time of eighty minutes, only twenty minutes remained for activities over the target area.⁴⁹ The exigencies of aerial combat quickly exhausted any fuel reserves and left pilots with little or no safety margin. As much as possible, missions had to be executed in a straight line from base to target and back so that planes were not forced to ditch in the Channel. The defenders knew that assaults would not come from different approaches and enemy feints and misdirection were only remotely possible. Anti aircraft gunners plotted their firing plans accordingly and aircraft could more easily be concentrated. German fighters were forced to attack head on and were denied the opportunity to outflank and deceive their opponent. To make matters more difficult for the offense, "the actual battle sector over England represented not even one-tenth of the total area of the island."⁵⁰ The RAF abandoned forward air bases except for emergencies and relocated the vast majority of their aerodromes outside the range of the German fighters.

A limited radius of operation violated one of Douhet's most cherished tenets: that the air was basically borderless and contained no geographic impediments. A bomber could strike at will at any number of targets

⁴⁹ Ibid., p.23.

⁵⁰ Ibid., p. 39.

according to theory. A defender would be too spread out to effectively counter every angle of attack. Douhet stated that an enemy airforce must be destroyed in the air, at the factory, and at its home base. Fighter Command fought the Luftwaffe to a draw in the former and gained the decided advantage, by dispersing manufacturing, support and airfields outside the combat zone. Able to concentrate their forces and maintain a short and reasonably secure line of communication, the defense was prepared for the onslaught.

The initial targets were the fighter bases, command centers, and unusual looking masts that were part of the early warning radar system. Although German casualties were high, the Luftwaffe was achieving the desired effect of stretching Fighter Command to the breaking point. Prime Minister Churchill witnessed first hand the seriousness of the situation when visiting air operation headquarters on a particularly busy day and noting that not a single fighter remained in reserve. Churchill's solution was at once brilliant and brutal but had the result of saving Fighter Command by inducing Hitler to enter an arena of combat he was unprepared for: strategic aerial bombardment.

THE BLITZ

On the night of August 24, 1940, two German bombers from a force of one hundred-seventy became lost in the clouds while on the way to attack oil tanks approximately fifteen miles downriver from London. Without adequate navigational aids, the two aircraft dumped their payloads and hurried home.

As chance would dictate, they were flying directly over the heart of the city. The incident was merely a mistake of war with, "little doubt, even at the time, that the bombing was unintentional."⁵¹ The next night, Bomber Command retaliated with a deliberate counterstrike against greater Berlin. The Prime Minister himself had "given the instructions that the R.A.F. keep hitting Berlin until the Germans reacted."⁵² The decision to provoke Hitler almost certainly must have been the most difficult of Winston Churchill's long and very distinguished career. In order to save Fighter Command, and thereby prevent the invasion of the British Isles, one of the great cities of the world was offered up as a sacrificial lamb. Two thousand years of history and all the glory of the empire were at risk of being bombed and burned into rubble.

In another sense, Churchill was pleased that the long anticipated onslaught had finally been unleashed. He wrote that, "I was glad that if any of our cities were to be attacked, the brunt should fall on London. London was like some huge prehistoric animal capable of enduring terrible injuries, mangled and bleeding from many wounds, and yet preserving its life and movement."⁵³ For a man of action, the anticipation is often times the worst part. Another source states that Churchill described London as, "the greatest target in the world, a kind of tremendous, fat, valuable cow tied up to attract the beast of prey."⁵⁴

In Germany, the invasion of Poland and France had been contemplated for several years. Blitzkrieg was created for the express purpose of avoiding immobile warfare. Every element of the attack, including the weapons themselves, had been tested in combat in the Spanish Civil War or in realistic

⁵¹ Leonard Mosley, The Battle of Britain. (Alexandria, Virginia,: Time Life Books, 1977), p. 118.

⁵² Ibid., p. 119.

⁵³ Winston Churchill. Their Finest Hour. P. 319.

maneuvers. It is surprising, therefore; that, “during the first ten months of the war, there was no German plan for the bombing of London.”⁵⁵

Goering favored mass formations of medium fast bombers aimed directly at the center of the capital. He hoped enough explosives could be delivered to motivate panicky civilians to clamor for immediate surrender or at least some form of accommodation with the Nazis. Staff officers responsible for the conduct of the campaign against England, espoused far more modest goals. Due to the immensity of the British economy and the physical size of London, area bombardment was not considered effective particularly when administered by warplanes with limited lifting ability. The preferred plan of attack, “was against certain types of vital targets, such as the aircraft industry.”⁵⁶ Hitler’s rage at the British bomber forays trumped military logic and Goering’s plan, with its promise of inflicting massive numbers of civilian casualties, was implemented.

On Saturday, September 7, 1940 the Luftwaffe turned its full attention to London. The main targets were the docks and warehouses located in the East End along the Thames. The ensuing conflagration was the worst in London since the Great Fire of 1666. For the next seven days, around the clock air strikes were directed towards the same general area. To Goering’s consternation, the knockout blow planned for September 15 failed and the invasion of Britain was postponed. He was elated by the damage reports but depressed over the mounting toll of machines and men. German pilots spoke of the unmitigated strength of Fighter Command. The number of Hurricanes, responsible for “most of the five hundred Luftwaffe bombers lost in combat

⁵⁴ Michael Sherry. P. 64.

⁵⁵ Constantine FitzGibbon, The Winter of the Bombs: The Story of the Blitz of London. (New York: W. W. Norton and Company, 1957), p. 23.

⁵⁶ Ibid., p. 22.

actions, “ and Spitfires, accounting for the vast majority of the “critical Me-109s lost in combat actions,”⁵⁷ actually increased during the course of the three and one-half month battle. What was even worse for Goering was that the component and final assembly factories for the front line British fighters were almost all out of range of the Luftwaffe. Even if the targets could be located and lie within the normal operational radius of the bombers, a tactical air force would have great difficulty in inflicting enough physical damage to seriously hamper Fighter Command’s supply chain.

It was anticipated by the German High Command that raids against London would draw out every available British fighter. What was more difficult to foresee was the reaction of people while living under the bombs. Lacking a true precedent, the impact of sustained bombardment on urban civilians could not be precisely predicted. Although Chinese and Spanish cities as well as Rotterdam had already been attacked by this time, only theories had been offered as a guide as to what constituted an effective long term campaign. The eventual shortcomings of Luftwaffe doctrine were not apparent until well after the Blitz began. Although German strategy was executed close to expectations, the response of the intended victims was radically different than that foreseen by either side. The observed results were so far from earlier predictions, that further analysis is necessary.

LONDON IN THE FALL OF 1940

It is not possible to explore in complete detail the full range of emotions and factors compelling the actions of some six million human beings, even if limited to one place during one hundred days. Some very general

⁵⁷ Frank W. Heilenday, The Battle of Britain-Luftwaffe Vs. R.A.F.: Lessons Learned and Lingering Myths From World War II. (Santa Monica, California: Rand,

conclusions can be drawn, but there are always exceptions to every observation.

Anticipating the worst in London, "in the first days of September 1939, a million and a half persons were evacuated officially."⁵⁸ Others unofficially left their urban homes for the comparative safety of the countryside earning for themselves the moniker 'private evacuees.' During the sitzkrieg, of the million and a half who had left the city one million, including almost all the mothers, had returned by May 1940. ⁵⁹ The tide reversed itself again after the start of the Blitz. Beginning at seven p.m. on September 7, "convoys of motor vehicles filled with entire families and piled high with luggage, proceeded westwards."⁶⁰ The exodus lasted for the next several weeks as the attacks continued. Interestingly, there are no official statistics documenting the exact numbers of those who stayed, those who moved into less threatened parts of London, and citizens who migrated to rural districts. The best guess might be that after one year of war, some of these and others too went back into the country, fewer than the first time, though perhaps 1.25 million humans spread over months.⁶¹

The voluntary natural selection was most helpful in removing those residents who might have a more difficult adjustment to the disruptions caused by bombs falling all around their hometown. It can not be quantified but it seems reasonable to concur with Blitz survivor Tom Harrisson's observation that "those who stayed totally 'put' tended to be of tougher calibre."⁶² The blue-collar neighborhoods of "the East End, where disaster is

1995), p. 19.

⁵⁸ Harrisson. p. 32.

⁵⁹ FitzGibbon. London's Burning. p. 25.

⁶⁰ Ibid., p. 45.

⁶¹ Harrisson. p. 32.

⁶² Ibid., p. 65.

always just around the corner, seem to take it better than the more fashionable districts in the West End” wrote broadcaster Edward R. Murrow.⁶³ The longshoremen, teamsters, and manual laborers working and living in the former endured the heaviest air attacks. As living conditions deteriorated, “the intellectual - the man who can write and talk - now counts for even less than he did a year ago; the man who can run a lathe, fly a plane, or build a ship counts for more.”⁶⁴ Harrison noted it is helpful in understanding the resilience of the civilian population to remember that “most ordinary people in those days were used to deprivation and lived every day with anxiety; the distress [of the Blitz] was not so much new as additional.”⁶⁵ He estimated that “over two-thirds of the islanders [British] in the late thirties had next to nothing in hand from payday to pay day. The loss of warmth, hot food, even furniture, was not a universal novelty.”⁶⁶

Great Britain was not a welfare state in 1940. The Great Depression was a painful memory just beginning to recede. To the majority, economic recovery had not yet alleviated almost ten years of very tight money and widespread poverty. For an overwhelming number of people, “family wage-earners simply had to earn.”⁶⁷ The probability of being killed by a random bomb during the few hours of an air raid competed with the twenty-four hour a day gnaw of a hungry stomach. Only by working could the average Londoner provide for himself and his dependents and not be forced to relive the privations of the 1930’s. If streets of debris had to be traversed and some of the basics of urban life interrupted, it was a small price to pay

⁶³ Edward R. Murrow, This Is London. (New York: Simon and Schuster, 1985), p.160.

⁶⁴ Ibid., p. 152.

⁶⁵ Harrison., Living Through the Blitz. p. 334. Parenthesis have been inserted.

⁶⁶ Ibid., p. 231. Parenthesis have been inserted.

⁶⁷ Ibid., p. 141.

considering the unhappy alternative so recently experienced by so many. The dread of unemployment and “the need to keep at the job were over-ridingly powerful.”⁶⁸

The most heavily bombed section of London was called the East End, in reference to its geographic location. It contained a preponderance of piers, wharves, and warehouses needed to service sea-going merchant ships. The greatest number of military targets were located there and it became accordingly, the most frequent aiming point for the Luftwaffe. Basil Woon, an eyewitness historian who lived in the East End during the Blitz, records that blue collar longshoremen and other manual laborers lived near “the dock area, in that vast conglomerate warren of slums and humbler homes.”⁶⁹ Inured to a large degree to pain and danger, they quietly grew more determined during the course of the Blitz. For many, the biggest disruption was a lack of sleep. Productivity however, was only slightly affected. Even at the height of the bombing, Woon calculated that “just as many ships were unloading as there were yesterday – which is about twice as many as in peace time.”⁷⁰

The fear of being randomly killed eventually faded and a new emotion arose among the survivors. The fact that property was so dear to the working poor made ownership extremely important. When Hitler destroyed their homes, a groundswell of revenge arose. The war suddenly became quite personal. A family with little means witnessing the destruction of not only their dwelling but of pictures, mementos, and heirlooms feels stripped of all security. Bringing the perpetrators to justice became an overwhelming

⁶⁸ Ibid.

⁶⁹ Basil Woon. Hell Came to London. (London, England: Peter Davies, 1941). P.46.

⁷⁰ Ibid.

passion. Experiencing the carnage and dealing with the deaths of friends and neighbors exacerbated intense emotions. One Londoner wrote, “something turns over inside me and for the first time, I began to hate.”⁷¹

The West End and the City of London (the financial district adjoining the Tower of London) were not as badly damaged physically but the locals suffered the same psychological effects. Buckingham Palace and Westminster Abbey were hit and both the Queen and King and the Prime Minister often toured the battle damaged areas. Though not quite as exposed as the East Enders, every other Londoner was nonetheless also at risk.

It is clear from his writings and speeches that Winston Churchill saw himself as the guardian of two thousand years of British history and tradition. He believed that his tiny island had brought civilization to a large part of the world. The industrial revolution began in England first and created wealth to such an extent that the middle class was born. The English language was exported around the globe and the countries of the United States, India, Australia, New Zealand, Hong Kong, and Singapore were all either initially colonized or greatly benefited from their relationship with Great Britain. Destruction of the physical institutions upon which the English people built their empire was as hurtful to Winston Churchill as the loss of one's home was to a Cockney. He wanted to harness the instinct to defend and strike back at the instigator of such barbaric deeds. Not just self-preservation was involved, but the urge to retaliate against the destroyer of everything an Englishman identifies with and understands.

Winston Churchill fervently believed that Germany would attempt to apply Douhet's theory and eliminate England as a belligerent by a short but

⁷¹ Ibid., p. 31.

massive application of overwhelming airpower.⁷² Churchill concurred with the vision of air supremacy as the first and most important arena of modern warfare. Britain could embargo Germany as it had in World War One but any effect required a long period of time. The Luftwaffe however, could strike quickly before the British Army could be fleshed out to an adequate size, trained, outfitted, and transported back into combat.

Churchill believed that three major problems would emerge as soon as the Nazi aerial attack commenced. The first was ensuring the safety of the water supply. Not only would the water mains be shattered, but the sewer lines would also be smashed. The effluent of six million people posed a very serious health risk if disposal facilities and sewer pipes became inoperative. The system did in fact break down in early October, 1940. Churchill records that raw sewage had to be pumped directly into the Thames followed by massive amounts of chemicals in order to mitigate the threat.

The second fear was that there would be an outbreak of communicable diseases due to the crowding of millions of people into small, damp shelters. Fortunately, no epidemics occurred and, "the fact remains that during this rough winter the health of the Londoners was actually above the average."⁷³ The third anticipated dilemma was a shortage of glass. Blast concussions easily shattered glass within a very wide radius of an explosion. With the approach of winter, the lack of protection from cold and rain might weaken the health of the populace. The substitution of other building materials was quickly implemented and most survivors suffered no worse than in a typical winter.

⁷² Winston Churchill. The Gathering Storm. (New York, New York; Bantam Books, 1948). P. 137.

⁷³ Winston Churchill. Their Finest Hour. (New York, New York: Bantam Books. 1949). P. 308.

From a more strategic perspective, the Prime Minister was confronted by even more dire circumstances. Great Britain was less populous than Germany but economically possessed about the same strength. The Nazis however, had begun to rearm much earlier and relied less on long lines of overseas communication. Germany also benefited from the resources of her ideologically similar partners, Italy and Japan, and engaged in active trading with nearby neutral countries such as Spain and Sweden. Swiss banks were a source of financing as well as a repository for both legitimate and confiscated cash and other valuables. After the conquest of France, all the raw materials, physical infrastructure, and industrial capacity of a great power was absorbed into the German war machine. England was supported by her colonies and trading partners but the seelanes had to be protected against the numerically small but lethal U-boat threat. The United States possessed the greatest economic potential but its prevalent isolationist attitude and woeful unpreparedness meant Churchill could be offered only limited assistance.

The British War Cabinet had concluded in February 1940 that the country could not afford a long war of attrition. The Chancellor of the Exchequer calculated that Britain, "would exhaust its gold and silver reserves by December 1940, then go bankrupt."⁷⁴ To add to his burdens, Churchill faced the distinct possibility that if he continued to resist Nazi aggression, it could very well cost him the empire and even Britain's status as a world power. When the bombing actually began, Churchill was almost relieved. Now he could focus on the task at hand and, at least temporarily, ignore the strategic implications of his defiance.

⁷⁴ Angus Calder. The Myth of the Blitz. (London, England: J. Cape Publishers. 1991). P. 48.

DAILY LIFE DURING THE BLITZ

The Luftwaffe could not inspire the degree of terror necessary to overcome the innate basic needs of the intended victims. After eleven straight days of bombing, eyewitnesses noted that, "women in particular were growing tougher; even crying was becoming rare."⁷⁵ As in most traumatic events, survival "was the process of personal and family adjustment."⁷⁶ As much as possible, the locals continued their normal routine. Mail was delivered to homes, as was the daily paper.

An excellent account of the struggle to continue the printing presses is offered in Fleet Street, Blitzkrieg Diary. Between September 20, 1940 and August 8, 1941, journalist Gordon Robbins recorded a weekly tabulation of the impact of the Blitz on his employer's publishing house. The enterprise, as was almost every other major publisher, was located on Fleet Street in the City of London. Fleet Street is the oldest section of London and is built upon an old creek bed that the Romans used as a campsite more than two thousand years ago. Robbins states that after two weeks of daily attacks, not a single issue had been lost and the printers became accustomed to adapting themselves to novel emergencies. Stocks of newsprint were destroyed forcing a drop in circulation and unexploded bombs snarled distribution. The performance of the staff, however, far exceeded expectations. After a fortnight, only one person asked for a leave of absence and another resigned and left London. Even after four weeks, 75% of the employees reported for duty before the regular start time of 9:30 am. Like most business, closing

⁷⁵ Harrison., Living Through the Blitz. p. 6f5.

⁷⁶ Ibid., p. 66.

hour was advanced to 4:30 PM. for the duration. As winter approached and sunset arrived earlier each evening, it was deemed prudent to allow extra time for workers to return home, eat dinner, enjoy a pint at the local pub and settle into the nearest shelter before the Luftwaffe arrived.

By the end of the Blitz in late spring, 1941, one hundred and fifty members of the staff remained diligently at their posts out of an original contingent of two hundred and ten on the eve of the outbreak of war. Most of the reduction occurred early on when several of the young female staffers evacuated the city with their children. Only three had been killed or injured severely enough to be incapable of working. During the course of the trial, several people were granted temporary leave to care for dead or displaced family members or to recover from the shock of having their home destroyed. Absenteeism actually dropped from previous levels as survivors made a concerted effort to get to work. Robbins recalls very little grumbling and noted that, "bombed-out firms almost without exception, are not seeking fresh homes in the suburbs or farther afield but in the great City and indeed, as near as possible to their old addresses."⁷⁷ Numerous competing publishing firms domiciled in the same area are mentioned with some companies suffering worse casualties and damage and others less. Overall, Robbins' narrative appears very representative of the experiences of many people in the Fleet Street district.

Even though there was damage to the infrastructure throughout the city, repairs were quickly instituted. The most difficult problems were caused by time delayed bombs. Reconstruction could not proceed while 500-pound bombs lay buried in the middle of a street or worse yet, lodged among gas

⁷⁷ Gordon Robbins. Fleet Street Blitzkrieg Diary. (London, England: Ernest Benn Limited. 1944). P. 56.

and water lines several feet underground. Many eyewitness accounts describe unexploded bombs and the ensuing disruption. Transportation, heat, water, and electricity were often interrupted but not everywhere in London and not all at once. Spot shortages naturally occurred but efficient repairs, inventory, and government and private charitable organizations helped smooth out the low points.

The procurement of food supplies was given very high priority. Lord Woolton, born Fred Marquis, was assigned responsibility for the task and was determined that no one should go hungry. He imported huge quantities of food well before hostilities began. Stores were dispersed throughout the metropolitan area in well-fortified basements and cellars. Even if heavy air raids destroyed several of the depots, there would still be a plethora of caches remaining. Lord Woolton confidently declared during the peak of the blitz, "today, we have more basic stocks in this country than ever before."⁷⁸ The situation never became dire leading one observer to quip, "there is no real shortage of anything that is a necessity, but we can't get a decent martini in London."⁷⁹

ANALYSIS OF THE BLITZ - MANUFACTURING

One of the most important indicators of German ineffectiveness was the continued pace of the manufacture of single engine combat aircraft. In June 1940, British output reached 440 to 490 fighters a month and continued on

⁷⁸ Quentin Reynolds. A London Diary. (New York: Random House, 1941). P. 114.
⁷⁹ Ibid., p.124.

almost the same scale even under Luftwaffe attack.⁸⁰ Although, in the three weeks before September 7, Fighter Command aircraft and aircrew losses far exceeded replacements,⁸¹ the change in German tactics to exclusive nighttime raids allowed new production to replace Spitfires and Hurricanes lost in action. During the Battle of Britain, about one thousand, five hundred new fighters rolled off assembly lines to offset the approximately one thousand destroyed airframes.⁸² Luftwaffe efforts to disrupt fighter production were largely ineffective due to the location of most of the relevant factories. The Merlin engines that powered both Hurricanes and Spitfires, the only engine suitable for Britain's frontline fighters,⁸³ were manufactured at a facility in Glasgow, Scotland and by the Ford Motor Company in Manchester. Another major industrial center was Merseyside, which included Liverpool, with small component factories scattered throughout the Midlands. Located outside the range of protective fighter escorts, German bombers were forced to attack alone. This fact meant that any daylight raids would be prohibitively expensive. Some night operations were conducted but the primitive state of medium bomber navigation rendered most efforts futile.⁸⁴ The number of sorties flown by German aircraft and the tonnage of high explosives and incendiaries dropped are as follows:

August	4779 sorties	4636 tons
September	7260 sorties	7044 tons
October	9911 sorties	9113 tons
November		6510 tons

⁸⁰ Bekker., p. 228.

⁸¹ Heilenday. Battle of Britain, p. 3.

⁸² Ibid., pp. 21,22.

⁸³ John Vader. Spitfire. (New York, New York: Ballantine Books Inc. 1969). P.

38.

⁸⁴ Ibid., p. 81.

December	3844 sorties	4323 tons
January, 1941	2465 sorties	2424 tons
February	1401 sorties	1127 tons ⁸⁵

As is evident, the heaviest activity was in October. The first part of the month was especially significant as that was when daylight attacks ended and the bombers flew only under the cover of darkness. The operational shift was in direct response to unacceptable attrition rates. Luftwaffe losses per combat sortie were 3% for fighters operating by day, 6% for German bombers in daytime but only 0.7% at night.⁸⁶ Accuracy was even more problematic in the dark making the chances of destroying targets of economic importance diminish as the battle progressed.

Although Londoners' places of employment were somewhat more secure after the switch to night bombing, there was a trade-off. In the Blitz, "it became clear that loss of sleep was the major problem, outweighing all other distresses and anxieties. Sleep, or the lack of it, almost replaced the weather as a topic of conversation."⁸⁷ It is most difficult to ascertain the exact loss of productivity during the almost two months of nightly raids. It is claimed that, "work never came to a standstill for more than a matter of hours in any industrial area."⁸⁸ Apparently, those residents "who have something to do with their hands are all right. Action seems to drive out fear"⁸⁹ Besides the production of war material, it was not necessary for achieving victory except for the citizenry "to muddle through."⁹⁰

⁸⁵ Bekker., p. 255. No number for sorties flown is available for November, 1940. It can be assumed that it was roughly the same as tonnage dropped, as the approximate ratio was one ton of bombs delivered per sortie.

⁸⁶ Mosley., p.19.

⁸⁷ Harrisson., p. 102.

⁸⁸ Ibid., p. 287.

⁸⁹ Murrow., p. 183.

⁹⁰ Harrisson., p. 286.

As compared to pre-war estimates, the bombings were spectacularly unsuccessful in killing large numbers of people. By October 31, 1940, British civilian fatalities were about 23,000; plus over 30,000 seriously wounded.⁹¹ Divided by the quantity of ordnance expended, fatalities were 0.8 per ton and total casualties 1.7 per ton.⁹² For planning purposes, British civilian defense officials in 1937 had projected a death rate of 17 per ton with the number of total casualties estimated to be 50 per ton. The percentage of the work force killed was far too low to harm the economy.

Assuming that the 1.5 million evacuees from the pre-Blitz population of 6 million Londoners were non-productive in an economic sense, i.e., young mothers, children, and the elderly, the casualty rate for those remaining was less than 1.2%. The pool of unemployed easily filled any gap created due to enemy action.

IMPACT ON CIVILIANS

Clearly the Nazis failed to achieve their goals. Manufacturing had not been dislocated, London on the whole was still standing, and not enough civilians were being killed fast enough. The overwhelming desire of those remaining to stay alive by leaving the city was not in evidence. The human targets had adjusted to a new pattern of living and were not terrorized enough to seek alternatives other than to carry on.

England had anticipated being bombed well before the Blitz. Physical arrangements had been made during the late 1930's in the form of air raid shelter construction, the stockpiling of food and other strategic materials, and rehearsals for the shock of living under aerial bombardment. Continuous

⁹¹ Mosley, p. 12.

⁹² Ibid.

discussions and the open debate over how best to survive created a level of expectation that conditions would definitely deteriorate during the course of a future war. Mentally and psychologically adjusted for a worst case scenario, when the bombing finally did begin diarist Mollie Pawter Downes described "a feeling of relief that the country is now united under a fighting leader who is not afraid to tell hard truths and to call for hard deeds when circumstances require them."⁹³ A remarkable reservoir of resilience was created that greatly assisted the majority in muddling through. The damage was substantial and the casualties horrible but the situation was much less grim than what many had anticipated. As long as the government continued to respond as best it could, dissidence remained almost non-existent and morale seemed to stabilize.

Another aspect of the Blitz is harder to measure but just as important to contemplate. A sense of duty arose from the rubble and ashes of London. An auxiliary fireman offered an excellent example when relating his feelings that, "it was all new, but we were all unwilling to show fear, however much we might feel it. You looked around and saw the rest doing their job. You couldn't let them down, you just had to get on with it."⁹⁴ Ordinary citizens coped by becoming air wardens and firewatchers. Physical activity diverted attention away from the self and towards the higher ideal of helping others. Most assignments were not glamorous, just people, "being busy, just doing a job of work, and knowing that it all depends on them."⁹⁵ The completion of a difficult task under the worst of circumstances led to a feeling of intense

⁹³ Mollie Pawter Downes. London War Notes 1939-1945. (N.Y., N.Y.; Farrar, Straus, Giroux, 1971). P. 61.

⁹⁴ FitzGibbon. The Winter of the Bombs. P. 48.

⁹⁵ Murrow., p. 171.

pride. Those who stayed in the city, "were normally, audibly proud to be there. They expressed contempt for the rest."⁹⁶

There was even a display of jealousy among the rural populace towards Londoners. The sources are replete with examples of farmers and villagers visiting the beleaguered city and staying for several days for the purpose of sharing the risks. Certainly if the soft urbanities could survive, hardy non-Londoners could as well. Surviving the cataclysm led to the belief that no one had ever suffered more. It was a wonder to have endured at all.⁹⁷ Outside one bar, it was noted, "no gas, no water but good spirits."⁹⁸ Signs displayed outside the gutted ruins of a beloved home or a shop that had belonged to the same family for generations summed up the attitude of many. Murrow wrote, "in a window, or what used to be a window, was one that read: shattered - but not shuttered. Nearby was another reading: knocked but not locked."⁹⁹ Perhaps most indicative of the opinion of a large percentage of those who voluntarily stayed behind and endured, was the saying, "we shall live hard, but we shall live."¹⁰⁰

Amid the destruction and slaughter, a most surprising sentiment arose that was totally unanticipated. Many Londoners concurred with the statement that, "I wouldn't live anywhere else. I have grown fonder of the place since the blitz began and I find it quite exciting."¹⁰¹ The feeling was echoed by others. One young lady confided, "the war was still reasonably new. It was exciting, a terrible thing to say but it was. After all, when you're

⁹⁶ Harrison., p. 225.

⁹⁷ Ibid., p. 137.

⁹⁸ Reynolds., p. 152.

⁹⁹ Murrow., p. 187.

¹⁰⁰ Ibid., p. 237.

¹⁰¹ Harrison., p. 278.

twenty three years old a stimulus is a stimulus.”¹⁰² Another woman of the same age but different social background agreed. “It gave me excitement - I mean it’s an awful thing to say, but it did, it gave me a lot of excitement, the raids I mean.”¹⁰³ A sense of camaraderie, of shared danger radiated among the inhabitants. Harrison reported that in many communal shelters the denizens “nearly always built up into a steady pattern of ‘regulars,’ reminiscent of the public bar in a local pub in the same sort of district in peacetime.”¹⁰⁴ Other witnesses wrote that, “London came to resemble a small town. There’s something of a frontier atmosphere about the place.”¹⁰⁵ American journalist Quentin Reynolds commented that “people are actually living in London. They’re dying too, but they’re getting twenty-four hours a day of living first.”¹⁰⁶

The breakdown of socioeconomic barriers also contributed to the novelty of the situation. “Class distinction, dignity, and even financial prestige are hard to maintain in an air-raid shelter at three o’clock in the morning.”¹⁰⁷ For most, sleeping on a subway platform was another new experience. The thrill of the Blitz even usurped the pursuit of money. Reynolds noted that “nobody talks about it. People who’ve had their homes or offices bombed will tell you about it, but they never think to tell you what the loss amounted to, whether it was so many tens or hundreds of pounds.”¹⁰⁸ Everyone shared the same risks but the young discovered a considerable stimulus in the

¹⁰² FitzGibbon. The Winter of the Bombs. p. 128.

¹⁰³ Ibid.

¹⁰⁴ Harrison., p. 196.

¹⁰⁵ Murrow., p. 183.

¹⁰⁶ Reynolds., p. 303.

¹⁰⁷ Ibid., p. 153.

¹⁰⁸ Ibid., p. 183.

excitement and even a sense of freedom: in most young people there is a happy streak of anarchy.¹⁰⁹

Opposed to the bleak 1937 forecast of the Mental Health Emergency Committee, there was no increase in insanity: there were fewer suicides: drunkenness declined by over 50%, and the number of persons with neurotic illnesses or mental disorders attending clinics and hospitals actually declined.¹¹⁰ Arrests for intoxication in London fell from 20,000 in 1937 to an estimated 9000 in 1940. Perhaps drunkenness became too expensive a luxury to enjoy as the war ground on even though nearly everyone was employed and making money. More likely, the sacrifices necessary to ensure survival created a more sobering, less celebratory atmosphere.

It was not uncommon for survivors to have fond memories of the ordeal. Especially popular as souvenirs were the spent shell casings from anti-aircraft guns. As a memento, Londoners, "rather touchingly, collected the lethal, white-hot shell fragments which throughout that winter clattered and sparked into their streets. These lumps of gashed steel are still to be seen on many a mantelpiece."¹¹¹

RESULTS OF THE BLITZ

Most theories exposed for the first time to real world conditions yield observed results quite distinct from the original estimates. Neither Great Britain as a whole nor London specifically was incapacitated by the Blitz. Casualties were less than 5% of the forecasted aggregate and the long-term psychological effect was negligible. Manufacturing capability was reduced immediately after a raid but usually recuperated within two days. Priorities

¹⁰⁹ FitzGibbon. The Winter of the Bombs. p. 131.

¹¹⁰ Ibid., p. 132.

were assigned to those industries most important to the war effort and fire suppression and damage control concentrated appropriately. The production of single engine fighters remained steady throughout the course of the battle and of whom Churchill praised as 'the few', only 420 Fighter Command pilots were killed, missing, or captured.¹¹² The Luftwaffe could call upon a pool of 10,000 trained military pilots while Fighter Command could add only fifty each week to its complement of 1450.¹¹³

There is no doubt that in urban areas subject to attack, city services were stressed and material damage sustained. It is also true that periodically older, decrepit homes were razed so that new structures could be built. Of some 13,000,000 private homes in 1939, nearly 4,000,000 were damaged (1,500,000 in London), and about 220,000 totally destroyed. But it must be remembered that this was nothing new, only the continuation of a trend which caused 245,272 houses to be demolished or closed from April 1934 to March 1939, over a million persons moved without a bomb to speed the process.¹¹⁴ Often damage was simply a case of blown-out windows and was not structural in nature. Gas, water, sewage, and electrical infrastructure was often destroyed in some places but not throughout all of London simultaneously. Pieces of the system were patched together with undamaged parts so that survivors could always find water and shelter, even if they had to search for awhile. The cold of winter in drafty homes and shelters combined with the strain of war, was supposed to result in massive outbreaks of disease and sickness. Fortunately, "there was no influenza epidemic, no diphtheria epidemic, no great increase in respiratory diseases such as tuberculosis. In

¹¹¹ FitzGibbon., p. 99.

¹¹² Heilenday. Battle of Britain. p. 21.

¹¹³ John Keegan. The Second World War. (London, England: Pimlico, 1989). P. 76.

fact, the health of the shelters does not appear to have suffered at all during the months spent in the stuffy, crowded arches and tubes."¹¹⁵ Starvation did not occur because, "the distribution of food stocks was carried out with great competence by the Ministry in question and only very rarely were there mistakes made and people left without food."¹¹⁶ Even alcohol, "another near essential in times of danger and protracted strain, was not so hard to find. The pubs had plenty of beer, but there was a shortage of glasses."¹¹⁷

Eventually, the Nazis realized that the war could not be won by strategic air attack alone but Goering would not admit that the German Luftwaffe lacked the power to do so.¹¹⁸ Deep underground tube stations and so named Anderson family shelters that were half buried in the backyard garden, offered good protection against the lightweight bombs deployed during the Blitz. In 1940, 99% of the bombs dropped weighed 250 kilograms or less, the 250 kilo and the 50 kilo high explosive bomb being the standard models.¹¹⁹ A few 1000 kilo bombs were introduced but not enough to achieve the desired outcome. The laws of physics dictate that, "a 1000 kilo bomb does far more damage than four of 250 kilo each, and a 2,500 kilo bomb is worth much more than fifty weighing 50 kilos."¹²⁰

Douhet's theory stated that a small number of bombers could effectively destroy a city. During the Blitz, the Luftwaffe launched enough aircraft on what should have been an adequate number of sorties to generate the desired effect. The reason for the discrepancy was the inadequate mass of high explosives contained in each bomb. Douhet consistently applied a standard

¹¹⁴ Harrisson., p. 314.

¹¹⁵ FitzGibbon. London's Burning. p. 94.

¹¹⁶ FitzGibbon. Winter of the Bombs. p. 123.

¹¹⁷ Ibid., p. 124.

¹¹⁸ Bekker., p. 256.

¹¹⁹ FitzGibbon. London's Burning. p. 98.

of each bomber delivering enough ordnance, “to destroy a surface 500 meters in diameter.”¹²¹ He defined a target as supply depots, industrial plants, warehouses, railroad centers, and population centers. A 500 meter swath of destruction might be achieved in a conflagration of incendiary bombs among wooden structures, but could not happen as easily if the target was constructed of heavy masonry, as was the case in the colder climate of northern Europe. It was discovered that a 1000 kilo bomb left an impact crater only 25 meters wide even if the bomb was dropped from very high altitude. When exploded in an urban setting, the walls of stoutly constructed buildings contained much of the blast. Not even the end of the war saw conventional bombs of sufficient yield that could destroy a target within a 500 meter radius from the point of impact. It is critical to note that the lack of destructive power contained in each bomb was the reason Douhet’s theory could not be immediately validated. A ‘conventional’ bomb did not exist during World War II that could destroy a target within a 500 meter radius.

Another revelation was that the attacks were not concentrated enough into a single geographic space. It is helpful to remember that because, “London is a huge sprawling city, there is nothing like a continuous rain of bombs. A hundred planes overhead doesn’t mean that they were all here at the same time – a few bombs will come whistling down, then silence again.”¹²² Bombing accuracy even during the day was entirely inadequate. Anti-aircraft fire was not very effective at bringing down the enemy but contributed greatly to breaking up the formations of bombers. Forced to constantly adjust speed and altitude and climbing higher than what the bombardiers wished, the attackers surrendered a large degree of accuracy.

¹²⁰ Ibid., p. 99.

¹²¹ Giulio Douhet. The Command of the Air. P. 50.

Another result of evasive maneuvering and excessive altitude was higher fuel consumption. The Luftwaffe was designed for short and medium-range sorties. Any deviation from a straight and level flight plan limited time over the target and further reduced the operating range of the aircraft. Barrage balloons also played an important role in disrupting pinpoint dive bombing attacks. Initially the tethering cables were constructed of material lacking the strength to retain balloons in windy conditions. The same weakness reduced the effectiveness of the balloons in protecting sensitive targets. A steel cable could slice off the wing of a low flying bomber which forced attackers to drop their payload from greater heights. Once the deficiency was corrected, the Stukas were denied their most effective and deadly tactic. Even after a full month of the Blitz, "none of the bridges across the Thames has been hit, neither has the towering Battersea Power Station just across the river on Whitehall."¹²³ Also, navigation devices were primitive and were only meaningfully effective during the raid on Coventry. Radio frequencies were easily jammed and resulted in far too great a margin of error even when working under optimum conditions. Camouflage and decoy fires burning in the countryside also were helpful in misdirecting the flight plans of the intruders.

The low density of structures in London frustrated the relatively simple task of area bombing a target several miles in length running along both sides of a major river. At that time, "London as a whole was the least built-up city in the world. Greater London consisted of no less than 90% parks, streets, playing fields and so on and only a tenth was houses."¹²⁴ At the height of the blitz, it was estimated that it would still take forty years at the

¹²² Murrow., P. 162.

¹²³ Quentin Reynolds. A London Diary. P. 19.

present rate of bombing, to wipe out London.¹²⁵ The city was too spread out and the intensity of the attack inadequate to deliver Douhet's single massive blow. Bomber crews blinded by searchlights and distracted by anti-aircraft fire during the night and hunted by fast and agile Hurricanes and Spitfires on day time sorties, could not cluster their payloads into a compact enough pattern to maximize blast damage.

In the aftermath of the Blitz, the reconstruction of devastated areas became a very delicate issue. First priority was to repair gas, electrical, and sewer lines. The second order of business was to clear away debris so as to allow transportation and pedestrian movement to return to normal patterns. There was substantial debate about the next course of action. Some citizens saw an opportunity among the wreckage. They were very upset of course over the destruction of national treasures and monuments, however; it was also true that, "a good deal that wasn't precious but only unhygienic, inconvenient, and an offence to civic pride has also gone down in the flames."¹²⁶ The Luftwaffe had inadvertently cleaned the slate. It became possible to build a new city upon the ruins of the old. Even the destroyed monuments could be resurrected on more convenient sites thereby permitting easier access for both locals and tourists. Renovation had to comply with the strictest guidelines, with the original plans as a template, but a small variance in geographic location was not seen to be damaging to the integrity of the building.

To preservationists, any change in the status quo was nothing short of blasphemy. They desired to restore London to as close to the exact pre-Blitz look as humanly possible. The Parliament House, the Wren churches, and

¹²⁴ FitzGibbon. The Winter of the Bombs. p. 95.

¹²⁵ Basil Woon. Hell Came to London. P. 206.

every other major structure damaged or reduced to rubble was to be rebuilt as was and in the same location. Any deviation was construed as unpatriotic and tacit admission of Nazi success in damaging England's prestige and historical legacy.

Churchill deferred the final decision to the post-war government. He did however, stress the importance of "repairing existing buildings which are not seriously but only slightly damaged."¹²⁷ The immediate impact was the wholesale replacement of shattered windows. It was estimated that the highest percentage of air-raid injuries were caused by flying glass.¹²⁸ To help as many homeowners as much as possible, a more damage resistant brand of window was offered as well as the crews needed to install them.

Another technique implemented to protect buildings and homes was a government edict demanding that all attics had to be cleared of any flammable material. Experience had shown that the worst area for an incendiary bomb to land was on a roof. Fire fighting equipment had great difficulty ascending the heights to the top of London's buildings and apartment flats. Spotting the mark of each bomb was complicated by the nooks and crannies inherent in many of the old buildings as well as by smoke and dust. Cleaner attics offered less combustible material with which to fuel an inferno and easier access for firefighters and rescue squads.

The Blitz revealed that a populace cannot be so easily cowed. Approximately one-fourth of Londoners fled the city either before or soon after the Blitz began. The vast majority of those who stayed survived the onslaught unscathed. Almost everyone experienced some degree of discomfort and hardship but few residents were actually broken mentally.

¹²⁶ Mollie Pawter Downes. London War Notes 1939-1945. P. 128.

¹²⁷ Winston Churchill. Their Finest Hour. P. 579.

Many stayed in place out of a sense of duty to country and peers. The haunting specter of the Great Depression was such a vivid memory that occasional bombs inspired less trepidation than unemployment. The pride of survivors and the exhilaration of some to be living in danger were emotions that were never part of the calculation of aerial bombardment theorists. Too late, the Luftwaffe realized that a resolute urban population, often residing in shelters, needed to be attacked more frequently, more accurately, and with much more destructive power. The vast majority of sorties flown and tonnage of bombs dropped occurred from August to December, 1940. The short duration of the Blitz and the lack of explosive power in each bomb doomed the German effort to destroy the British cities. The successful prosecution of a strategic air campaign required substantially more material damage and must kill a far greater number of people. German tactics, ordnance, and types of delivery platforms were shown to be insufficient. The Blitz was the first example of a sustained, concentrated air campaign. It was more than just a single raid as absorbed by Nanjing, Rotterdam and most of the Spanish cities. Proponents realized that the predicted consequences were less severe than originally theorized. It was however, only the first attempt. The teachers were soon to experience the wrath of the pupils.

THE SECOND TRIAL: GERMANY

As 1941 progressed, the number of sorties flown against the British steadily declined. Hitler had decided even before the Blitz started that the Soviet Union was his next target. The Luftwaffe was slowly withdrawn and redeployed south and east. German thrusts were directed towards Yugoslavia, Greece and the island of Crete. The purpose was to solidify the center and southern flank of Europe in order to serve as a base for the three pronged attacks against the Russians. The preliminary operation was six weeks behind schedule but was successfully completed.

On June 22, 1941, Operation Barbarossa was initiated and the blitzkrieg headed east. Germany had been the cause of Stalin's most egregious misjudgments ever since the Bolsheviks had expected the world revolution to start there only to see the German workers let them down.¹²⁹ A desperate Stalin demanded from Great Britain the immediate opening of a second front so as to relieve pressure on the staggering Soviet Union. Winston Churchill was a sworn enemy of communism and never trusted Stalin but was concerned most about the Nazis. If Germany triumphed in the east, her victorious armed forces would no doubt be shifted back to France to once again menace the home island.

By mid-summer 1941, Churchill surveyed a world wherein tyranny was of almost biblical proportions. All of Europe had fallen under the boot of dictatorship. Spain was governed by Franco, the winner of the Spanish civil war. The original fascist, Mussolini, held sway in Italy. The Nazis controlled

¹²⁹ Vojtech Mastny. The Cold War and Soviet Insecurity: The Stalin Years. (New York: Oxford University Press, 1996). P. 13.

France and the remainder of the western and central part of the continent. The Soviet Empire, spanning twelve time zones, trembled under the oppression of Stalin and the communists. Japan was ruled by a military junta under the guidance of a 'divine' emperor and had been subjugating Chinese territory since 1931. The only other great power that England could turn to for assistance was the United States. Unfortunately, for almost two years, the 'last great hope for democracy' was burying its collective head in the sand while Great Britain defended without Allies, the bulwarks of freedom. Churchill needed to somehow help the Russians but he also knew that he was still alone.

An appraisal of Great Britain's military situation did not suggest many alternatives. The roughly one-third million troops saved at Dunkirk had lost all of their heavy equipment and transport. Even if they could safely navigate through U-boat infested waters and be introduced into the Russian front, the impact would be insignificant due to the size of the theater both geographically and in number of soldiers engaged. A cross channel foray was not practical at the time because of a lack of manpower reserves and a shortage of landing craft. Another limitation was that control of the air over the proposed invasion fleet had not been established. The British navy had escorted much needed supplies especially trucks, on the England to Murmansk PQ resupply convoys, but was incapable of attacking Germany directly. The only realistic option remaining was to deploy Bomber Command in a strategic mode. The concept was grudgingly accepted by Stalin that, "the British could, as Churchill put it, only 'pay our way by bombing Germany.'" ¹³⁰ Neither ground nor naval forces could be brought to

¹³⁰ Richard Overy, Why the Allies Won. (New York: W. W. Norton and Company, 1995), p. 102

bear anytime in the near future. "For the moment, bombing constituted the Second Front."¹³¹ Two engine aircraft had already been active deep inside the Third Reich since August 25, 1940 on missions to provoke Hitler into retaliatory raids against British cities. Due to the extraordinary distance between air bases in England and Berlin, the initial raids in autumn of 1940 were very light. The average attack, "was carried out by twenty to thirty machines coming over in waves with intervals of almost a half hour between."¹³² Hurting the pride of the Germans by periodic sorties was enough to prod Hitler into ordering the redirection of Luftwaffe efforts towards the bait of London. In 1941, much more was demanded by Stalin and expected by Churchill.

During the Blitz, the main concern of the R.A.F. was survival. Bomber counterstrikes caused some damage but, "there is nothing in Berlin yet that begins to compare with it. Such destruction as was done there was scattered widely over the city."¹³³ Only after night raids against London slackened could any serious attention be given to shifting from defense to offense. Even at the height of the Blitz planning was being formulated for bringing 'war to the war makers'. Churchill best summarized British offensive strategy when he declared that, "we shall bomb Germany by day as well as by night in ever-increasing measure, casting upon them month by month a heavier discharge of bombs, and making the German people taste and gulp each month a sharper dose of the miseries they have showered upon mankind."¹³⁴ The order issued on October 30, 1940 committed Bomber Command to a, "policy of direct attack upon the German people in their cities as well as upon

¹³¹ Ibid., p. 103.

¹³² Frederick Oechsner, This is the Enemy. (Boston, Massachusetts: Little, Brown and Company, 1942), p. 214.

¹³³ Ibid.

industrial and military installations in or near them.”¹³⁵ The most important targets were oil facilities, particularly during periods of clear weather and sufficient moonlight when accuracy would be aided by visual sightings. It was also recognized that some effort would continue to be well used against marshaling yards and they knew that Bomber Command would have to contribute to the war at sea and in the air by occasional attacks on such targets as submarines and aerodromes.¹³⁶

A list of major cities and specific objectives was compiled. It was believed that by attacking them repeatedly by forces of between 50 and 100 bombers every few nights,¹³⁷ German towns would become uninhabitable and their factories would be destroyed. Tactics were amended however, after the German attack on Coventry in November 1940 when the whole center of the city, including its cathedral, had been ruined, and Bomber Command was instructed simply to aim at the centre of a city.¹³⁸ Churchill understood that there was a difference between surviving the Blitz and winning the war. Even though the Luftwaffe had re-directed its efforts to the east, victory was in no way assured.

There were many problems to overcome before the R.A.F. could successfully execute its task. Initially, the shortcomings of the British were similar to that of their German counterparts. There were not enough aircraft per raid, “each plane could carry no more than a ton of bombs, the biggest bomb in Britain’s arsenal in mid-1940 was a 500 pounder, and the bombs were seldom concentrated on a single target but were distributed among half

¹³⁴ Frankland., Introduction.

¹³⁵ Ibid., p. 30.

¹³⁶ Ibid.

¹³⁷ Ibid.

¹³⁸ Ibid.

a dozen or so.”¹³⁹ The foresight of pre-war bomber enthusiasts came to fruition as three new types of four engine heavy aircraft had already passed the design stage and were in production by late 1940. The Stirlings, Halifaxes, and Lancasters corrected the lack of payload inherent in the older models. More time was needed though to build up enough strength to seriously hamper the German economy. The British were optimistic that Bomber Command would succeed where the Luftwaffe failed partly because of the new generation of bombers. The British were fully committed to a long term campaign realizing that pressure must be continuously applied in order to effectively degrade the war making capability of the Nazis. The Blitz was executed more haphazardly employing aircraft not designed for the magnitude of the task. It was also understood that it was enormously expensive to build a fleet of four engine heavy aircraft. It is estimated that Bomber Command absorbed one-third of Britain’s total war effort. According to Stephen Garrett, the resources committed to the bomber offensive were roughly equal to those given to all British land forces.¹⁴⁰ First call on research and development, especially electronic technology, was reserved for the air war. Manning and training personnel was also quite costly and time consuming. Arthur Harris concluded that educating a member of a bomber crew required at least six months and cost some 10,000 pounds (British money) for each man, enough to send ten men to Oxford or Cambridge for three years.¹⁴¹

Recruiting from the limited manpower available at the time constituted another problem. British casualties in World War One decreased the number

¹³⁹ Ronald H. Bailey, The Air War in Europe. (Alexandria, Virginia: Time Life Books, 1979), p. 31.

¹⁴⁰ Stephen Garrett. Ethics and Airpower in World War II: The British bombing of German Cities. (New York, New York: St. Martin's Press, 1993.) p. 49.

of men reaching adulthood during World War Two. Demographics helped to bolster the argument for heavy bombers. A four-engine airplane could carry three times the payload of a light or medium machine and yet required only one pilot. Always the most difficult and responsible position, trained pilots were in great demand. To achieve the number of bombers necessary to fully secure command of the air, it became necessary to limit the total number of other bomber type aircraft.

Americans and other foreigners were heavily recruited to satisfy the demands for fighter pilots but Bomber Command desired to maintain as much of an all-British crew as possible. A bomber crew was a team that needed to work together if they were to survive. Friction and personality conflicts had to be kept to a minimum. In contrast, fighter pilots operated without passengers and the men were generally younger and more aggressive. Textbooks of fighter tactics insisted that pairs of planes act in concert in combat with younger pilots acting as wingmen to protect more experienced fliers. In combat, however, discipline often disintegrated as engagements broke down to one-on-one dogfights. A far greater sense of individuality was tolerated among fighter pilots. Several men functioning together as one was an absolute necessity in a bomber and it was felt the greater the level of homogeneity among the crew, the better.

For German bomber crews, navigation was reasonably simple. Flight time from bases in occupied France to English targets was quite short with the average period between bombers crossing the coast and bombs away being approximately seven minutes.¹⁴² The City, the financial district of London, was located on a meander of the Thames River. Assuming at least

¹⁴¹ Sir Arthur Harris. Bomber Offensive. P. 98.

¹⁴² FitzGibbon. The Winter of the Bombs. p.15.

some break in the cloud cover, bombardiers could usually locate such a prominent geographic feature. If all else failed, "London's approximate position was easily detected, even from very far away, owing to the concentration of searchlights. There were a number of recognizable positions, with groups of massed lights, which our more experienced bomber crews soon learned to use as navigational aids" recalled several German crew members. Lost or in need of establishing a more exact fix, "we would attract their attention, and make them illuminate by briefly switching on our navigational lights, or firing tracers, or shooting off our guns."¹⁴³

Bomber Command faced a more daunting challenge. Flying one thousand, five hundred miles round trip at night, including long stretches over enemy controlled territory, especially during the capricious winter weather commonly experienced in northern Europe, was a vastly more complex process. It became necessary to utilize different kinds of radio waves to guide the pilot over the target. As a result, the level of electronic warfare progressed rapidly as hostilities continued. Each advancement by one side was soon countered by the other. In the case of chaff, strips of aluminum were cut into precise dimensions to reflect one-half of the radio wave frequency most commonly emitted by German detection gear. Dumped from aircraft at specific altitudes, the effect was to disguise the true intent of a raid by obfuscating and overloading target acquisition radar screens with an overabundance of return signals. The concept was discovered during pioneering experiments conducted by the inventors of British radar. It was not deployed until later in the conflict because of the concern that the Nazis would use the weapon against their foes.

¹⁴³ Ibid., p.146. Compiled from different accounts of German bomber crews.

The Battle of Britain witnessed only minimal deployment of fighters to intercept incoming invaders after dark. Hurricanes were preferred because of the better visibility from their cockpit and wider landing gear track which was safer in night landings.¹⁴⁴ The Germans equipped Me-110s and Junkers-88s with airborne radar and deployed them along the Kammhuber Line, a vertical defensive line guarding the western air approaches to the Reich. Night fighters were extremely effective in knocking down aircraft from the bomber stream but only if they could find the target flying in their assigned space. British tactics were to spoof, jam, and deceive the defenders in any way possible and if still discovered, corkscrew away as quickly as possible.

Confounded by searchlights and anti-aircraft fire, British bombing accuracy was highly problematic during the initial stage of the counter offensive. In mid-1941, "the percentage of bombs landing within five mile of their aim point was only 31% overall, and just 9% for targets in the Ruhr. Also, 34% of the bombers dispatched did not release bombs on target, mostly because they could not find them."¹⁴⁵ After particularly heavy losses during a raid on November 7, 1941, the Air Staff had to face another unpleasant conclusion. Reich air space was becoming impossible to cross without sustaining casualties that would destroy planes and crews much faster than they could be replaced. The fact was that, "among bombers that headed for the Ruhr, risking the most formidable sector of the Kammhuber Line, the loss rate was a frightening 21%."¹⁴⁶ Churchill made the painful decision to suspend operations over Germany for the rest of that winter except for small forces sent only to the nearest targets and only in the most

¹⁴⁴ Heilenday. Battle of Britain. p. 18.

¹⁴⁵ Frank W. Heilenday, Night Raids by the British Bomber Command: Lessons Learned and Lingering Myths From World War II. (Santa Monica, California: Rand, 1995), p. 22.

favorable weather.¹⁴⁷ Not even the more conservative deployment of Bomber Command corrected the problem. A study of the data revealed that by February of 1942, “40% of the aircraft did not release bombs on their targets, and that those that did release had only 45% of their bombs within five miles of the target.”¹⁴⁸

Britain was irreversibly committed to a strategic air campaign against Germany. It was the only practical option available to strike back and relieve some of the pressure from the tottering Soviets. By early 1942, however, the sacrifice of men and machines had achieved only the scattering of 40,000 tons of bombs on the German countryside with negligible impact.¹⁴⁹

BRITISH ADAPTATIONS

Intensive debate during the 1941-1942 winter bombing slow down, led to a re-evaluation of doctrine and to the assignment of a new commander. Arthur Harris was appointed February 22, 1942 and led Bomber Command until the end of hostilities. Instead of concentrating on specific targets inside cities, the revised objective was to directly attack “the enemy’s civil population and in particular, the industrial workers.”¹⁵⁰ Harris did not adhere to Douhet’s premise that the will of the German people would collapse after a few intense raids. With the concentration camp round the corner, his belief was that Germany’s material ability to wage war was what counted and this could be undermined only by heavy and persistent bombing of industrial

¹⁴⁶ Bailey., p. 39.

¹⁴⁷ Ibid.

¹⁴⁸ Heilenday. Night Raids. p. 22.

¹⁴⁹ Bailey., p. 39.

¹⁵⁰ Alan J. Levine, The Strategic Bombing of Germany, 1940 -1945. (Westport, Connecticut: Praeger Publishers, 1992), p. 36.

centres.¹⁵¹ It was not Harris's strategy to bomb Germany simply to avenge the Blitz. The impetus for change was political in nature, emanating from British civilian leaders who were more enthusiastic about the shift to area bombing than most senior officers of the R.A.F.¹⁵² Area bombing entailed the abandonment of any pretense of accuracy. Prominent landmarks such as rivers or church steeples in the middle of towns served in a very general sense as aiming points. Payloads were dropped without regard for military targets. The purpose was not to damage the war machine as much as to harm and demoralize the civilian population. Elected officials were continuously besieged by their constituents to take the war to the Nazis. Angered by the destruction of their homes, neighborhoods, and beloved cities, the cry arose for tangible proof of pain being inflicted upon their tormentors. RAF commanders were sensitive to the concerns of the public but also understood that Bomber Command operated within the context of very limited resources in terms of both material and manpower. Any commitment of blood and treasure had to yield the highest possible return in damage to the enemy. It was recognized that daylight bombing was more accurate but also more costly. The switch to night operations was the result of intense political pressure as well as the material and manpower limitations under which the British labored. The Nazis had to be attacked with as few British casualties as possible. If German cities were destroyed and civilians killed, that was the price Germany must pay for Hitler bombing the home island.

The rationale behind the new tactic was that the most efficient manner in which to impair German economic activity was to make civilians homeless.

¹⁵¹ Overy., p. 113.

¹⁵² Levine., p. 36.

It was accepted as fact that the destruction of one's home was worse, "than having friends or even relatives killed."¹⁵³ From such a premise, forecasts were created based on previous observations and anticipated events.

German attacks on Britain showed that a ton of bombs dropped on a built-up area smashed twenty to forty dwellings, making one hundred to two hundred people homeless.¹⁵⁴ The typical British bomber survived fourteen sorties, dropping forty tons of explosives and incendiaries and therefore, making four thousand to eight thousand people homeless. Multiply the per plane average by the anticipated number of aircraft expected to be built and by mid-1943, Bomber Command could render homeless most of the people of the fifty-eight German cities that had over 100,000 inhabitants.¹⁵⁵ Once the decision was finalized the goal of 'de-housing' the German industrial worker was effectively set in concrete for the remainder of the war.¹⁵⁶

Within five weeks of his appointment, Harris was ready to demonstrate his unique and aggressive style. On the night of March 28, 1942, the ancient city of Lubeck was attacked. Lubeck was chosen specifically because it was largely of medieval construction so that the buildings were highly flammable.¹⁵⁷ The absence of any appreciable factories or industry placed it very low on the priority list of places to be defended. The result was the complete destruction of the inner city, heavy civilian casualties, and Bomber Command losses of only 4%. Encouraged by the outcome, Harris ordered another large-scale operation against the urban population of Germany. He was determined to demonstrate exactly what his command could do if given the necessary resources. Every available aircraft whether combat ready,

¹⁵³ Ibid., p. 39.

¹⁵⁴ Ibid.

¹⁵⁵ Ibid.

¹⁵⁶ Levine., p. 13.

undergoing maintenance, or utilized in training was assembled. Harris believed that a successful mission would stop the disbursement of new British aircraft to Coastal Command and the Mediterranean theatre. New technical innovations for mass raids and the introduction of the upgraded Gee navigational system were also considered important tools that needed to be employed.

On the evening of May 30, 1942, one thousand and eighty bombers were directed towards Cologne in the Ruhr Valley. Experience gained in the early stages of the war determined that on clear nights with more than a quarter moon, individual buildings could be distinguished at heights up to three or four thousand feet, small towns could be seen from four to six thousand feet, and small rivers were visible to six to eight thousand feet.¹⁵⁸ Unfortunately for Cologne, the sky that night was cloudless and a full moon shone on the broad Rhine River. Instead of a bomber stream spread out over hundreds of miles sporadically dribbling payload throughout the night, the raid lasted barely ninety minutes. The fighters assigned individually to a single box were instantly overwhelmed by the large number of attackers and were unable to react effectively. Cologne's civil defenses were likewise incapable of combating the massive tonnage of bombs concentrated for once into a relatively small area in a short period of time. Even Propaganda Minister Joseph Goebbels was disturbed enough after a personal inspection to write in his diary that, "the effects of bomb warfare are horrible when one looks at individual cases."¹⁵⁹ Two years after the raid, only 20,000 of a prewar

¹⁵⁷ Bekker., p. 450.

¹⁵⁸ Levine., p. 23.

¹⁵⁹ Charles Whiting, The Home Front: Germany. (Alexandria, Virginia: Time Life Books, 1982), p. 137.

population of 800,000 still remained in the ruins.¹⁶⁰ Any further bombing of Cologne was considered uneconomical.

If the destruction of Cologne wasn't unsettling enough for the German High Command, the ordeal of Hamburg elicited near panic. Seven times in nine days during August, 1943 the R.A.F. and American Air Force raided the city by night and day respectively. For the first time, chaff (code named Window to the British), was deployed in order to confuse the defense. "Bomber losses on the first night were only twelve out of eight hundred"¹⁶¹ (seven hundred ninety-one total bombers according to German sources). Hot and dry conditions made timber more vulnerable than normal to incendiaries and the lack of an aggressive fighter response allowed a compact pattern of bomb hits. Ack-ack was also limited due to the failure of radar control to see through the clouds of chaff and determine the accurate altitude, speed and direction of the raiders.

This combination of factors created a new and rare phenomenon, the firestorm. As the individual fires merged, cold air rushed in to feed the inferno. Winds accelerated to "speeds of one hundred to one hundred fifty mph, incinerating people above and below ground."¹⁶² British estimates were that at least fifty thousand were killed in this way and a million more fled from the city: half the houses were destroyed and more than half the remainder damaged.¹⁶³ It was estimated that 40 million tons of rubble clogged the city's center and in some areas of the city the total of fatal casualties among the inhabitants exceeded 30%. It was calculated that battle deaths among soldiers recruited from the city between 1939 and 1945

¹⁶⁰ Galland., p. 245.

¹⁶¹ Calvocoressi., p. 519.

¹⁶² Ibid., p. 520.

¹⁶³ Ibid.

were only 13% higher than among Hamburg's bombing victims.¹⁶⁴ German sources are more exact but no less dramatic; 30,482 inhabitants lost their lives, and 277,330 buildings - almost half the city - were reduced to ruins.¹⁶⁵ Other accounts state that the true number of deaths was closer to 40,000 and eight years were required to compile the accurate number.¹⁶⁶

The total destruction of a city was close to being realized at Hamburg. Over one million citizens fled and did not return. Substantially more civilian deaths were inflicted upon Hamburg in nine days than were endured by Great Britain in the three and one-half month Blitz. The basic services of water, gas, electricity and public transportation were completely shattered throughout the entire city. Major factories were not specifically targeted by the R.A.F. but, "the destruction of many small workshops and the general disruption probably cost the city 1.8 months of full war production. Production returned to 80% of the pre-attack level, but never did recover fully."¹⁶⁷

Hamburg in early August, 1943 proved to be the acme of the big blow theory of conventional night terror bombing. After four years of war, accuracy had much improved but the placement of bombs delivered at night still could not match the results of daytime missions. Precision was not relevant as a firestorm engulfing all of downtown maximized the strategy of saturating an urban center with high explosives and incendiaries. Although manufacturing did not cease entirely, the economy was permanently degraded. The impact was so severe that it forced a change in German philosophy. After the second night raid on Hamburg, Goering instructed the chief of air supply, Field

¹⁶⁴ Keegan., p. 356.

¹⁶⁵ Bekker., p. 460.

¹⁶⁶ Galland., p. 204.

¹⁶⁷ Levine., p. 62.

Marshal Erhard Milch, that the aircraft industry would forthwith concentrate on defensive production.¹⁶⁸

Less than three years after London's baptism by fire, improved directional finder systems, larger bombs, and heavier lift bombers resulted in the delivery of far more destructive power on target than the Luftwaffe could mount during its attempt to subdue England. Massive damage and casualties were inflicted but air strikes still had not concluded the struggle. Even with the assistance of freak weather conditions, mid-1943 technology was incapable of completely fulfilling the predictions of pre-war strategic bombing proponents. If a short offensive was not successful, perhaps a long-term commitment could still persuade a great power to capitulate without military occupation of its territory.

AMERICA COMES ON LINE

By the time of the Hamburg debacle, most Germans knew that circumstances would worsen over time. The incredible blunder of declaring war on the United States shortly after the Japanese attack on Pearl Harbor sealed the fate of the Axis. The natural resources and industrial capacity of the U.S., along with massive reserves of fresh manpower, guaranteed that any contest of attrition would work against the Nazis. The U.S. declared war on Japan December 8, 1941. No movement was directed to formalize hostilities against Germany until after Germany declared war on America first a few days later. Along with usurping his generals' decisions on the Russian front, it was Hitler's greatest mistake.

American strategy in 1942 was to sortie large formations of four engine aircraft unescorted on daylight missions. The Norden bombsight was thought

¹⁶⁸ Bekker., p. 461.

capable of delivering ordnance precisely on target and had demonstrated such in production trials in the hot and dry climate of Texas. The bombers were designed to defend themselves all the way to the target and back and thus did not require fighter protection even in the day. In contrast, the British were already fully committed to area bombing at night. Their latest generation of fighters did not carry enough machine guns to ward off Luftwaffe attacks and the older Hurricanes and Spitfires lacked the range to fly deep penetration missions to Germany. Great Britain's industrial base was incapable of constructing a bomber fleet large enough to absorb the losses inherent in daylight raids and perhaps most important, a shortage of men meant that not enough trained crews could be made available to man the aircraft even if enough were constructed. A compromise was reached wherein the British would continue to fly at night and the Americans during the day. Round the clock raids would deprive the defenders of sleep and more quickly eliminate the Luftwaffe and the aircraft industry that nourished it. As in most major wars, victory was not quick but achieved only after a long and arduous battle of attrition.

American bomber losses skyrocketed as daylight missions extended past occupied France and into German airspace. By the end of 1943, the situation had deteriorated to the point where a halt in the bombing was necessitated. Time was needed in order to replace the large number of planes and aircrews lost in action. It was becoming increasingly clear that unescorted bombers, no matter how heavily armed, could not adequately defend themselves against the Luftwaffe. Allied fighters lacked the range to escort the bombers all the way to the target and back. Forced to return to their British airfields

upon reaching the German border, the Allied escorts could only watch in their rear view mirrors as the Luftwaffe pounced upon the unprotected bombers.

In response, a major innovation occurred by the winter of 1943-44. American fighters were outfitted with disposable fuel tanks enabling them to escort the B-17s and B-24s anywhere over the Reich. The long range P-51 Mustang was also rolled out in the same time frame. Luftwaffe day fighters no longer could harass the bomber formations with impunity. The accuracy of the Flying Fortresses and Liberators was already superior to their British cousins and as a result of greater protection became even more so. With the threat of fighter attacks greatly reduced, the build-up of American bomber strength could increase more rapidly than expected. Another consequence was that the platform from which to deliver payloads became more stable as less evasive action had to be performed and fewer bombardiers released bombs early for the sake of self-preservation. The outcome was an exponential increase in the tonnage of explosives aimed ever more precisely at the economic fiber of Nazi Germany.

ANALYSIS OF THE SECOND TRIAL - CASUALTIES

During World War II, the death toll due to aerial bombardment for the greater German Reich existing on December 31, 1942 (but excluding Bohemia and Moravia) was 635,000 including 570,000 German civilians.¹⁶⁹ As for any aggregate casualty number presented for World War II, the above is inexact. It was not possible for Germany, Russia or Japan to accurately track the disposition of individual citizens due to the sheer magnitude of death and the wholesale destruction of files and records. Even today, Soviet

¹⁶⁹ Bekker., p. 564.

losses are calculated indirectly using statistical analysis of the gaps in demographic data.

Roughly ten times as many German civilians were killed as British. It may be assumed that the latter were responsible for the vast majority of German casualties and not their American partners. Daylight attacks often caused collateral damage to inhabited areas close to the target and bombs were released indiscriminately when clouds and smoke obscured visual sightings. It was considered anathema to U.S. commanders, however, to fight all the way into Germany only to obliterate worker's homes. British opinion was that saturation bombing was meant to destroy the Nazis' industrial potential and civilian deaths were an accepted part of the equation. Harris's attitude can be gleaned from an incident in which he was pulled over for speeding. When the police officer saw who he was, he was politely reminded to, "be careful, you might kill somebody." Harris replied, "my dear man, I am paid to kill people."¹⁷⁰

Before "Bomber" Harris is condemned for offending modern sensibilities, the suffering endured by London and the other urban centers in Great Britain must be remembered. The Blitz was not the only period during which England suffered aerial attack. During the entire course of the war, sporadic raids were launched, mainly against London, to demonstrate that Germany could still strike back at its enemy. Little attempt was made to target specific military objectives and ordnance was scattered indiscriminately onto the cities. The most egregious example of futility was the V-1 and V-2 programs. The former were launched twelve days after the successful D-Day operation in the general vicinity of London. A few weeks later, the rocket propelled V-2s began to rain down on the capital. Over one

ton of high explosives were carried as payload on each of the weapons. The tremendous blast caused by a V-2 had an even worse psychological impact because it arrived unannounced. The V-1 was noted for the buzz of its air fueled jet engine and then the eerie silence after it ran out of fuel and descended to earth. The V-2 traveled faster than the speed of sound and exploded before the victims knew it was coming. Beginning shortly after the July 20, 1944 failed attempt on Hitler's life, it was difficult for Londoners to comprehend the purpose of the new weapons. The British had already demonstrated their determination and capacity to absorb punishment during the previous four and one-half years. With the end of the war so close, it was not appreciated being on the receiving end of new weapons whose only purpose was to kill and maim civilians. Churchill quickly recognized the severity of the new threat and pressured his field commanders to overrun the launching sites as quickly as possible.

The Vengeance weapons served to harden the attitude of Bomber Command and give it the extra impetus to complete its mission. It became apparent that nothing could convince Hitler to stop attacking the home island. Destroying German cities and landing on the continent still did not stop the killing of women and children. Bomber Command and the civilian population saw no other way to alleviate the suffering. Arthur Harris had to relentlessly and without remorse bomb the Nazis until they unconditionally surrendered. Before the British are condemned, it is interesting to note the dichotomy in American public opinion. While pursuing a policy of precision bombing in Europe, "a poll on December 10, 1941 revealed that 67% of the population favored unqualified and indiscriminate bombing of Japanese cities with only 10% responding with an outright no. Subsequent surveys produced

similar results.”¹⁷¹ The reason for such opinions could be the fact that Germany had attacked England first, as Japan did to the U.S. Perhaps national self-preservation justified any means necessary to defeat aggression.

MANUFACTURING

It is extremely difficult to ascertain the extent of the economic damage inflicted by the R.A.F. and A.A.F. The biggest problem in establishing acceptable criteria is that there were no general grounds for agreement on how to weigh the effects of bombing on the German economy.¹⁷² One method was to examine the German plans of production, subtracting actual from planned output.¹⁷³ Errors could occur though, unless it was known if the forecasts were realistic or only reflected wishful thinking. Another source is to review postwar efforts to discern accurate information from extant data. The third tool is to accept the conclusions of Albert Speer, the Minister of Munitions and War Production for the Third Reich. In any case, “the inadequacy of surviving German statistics make all estimates rough.”¹⁷⁴

Studying what was left, the U.S. Bombing Survey suggests that prior to the summer of 1943, the air war, “had had no appreciable effect either on munitions output or on the national economy in general.”¹⁷⁵ By the end of 1943, a total loss of Gross National Product had been sustained amounting to not more than 3 to 5%.¹⁷⁶ The Survey concludes that, “bombings slowed down the expansion of output in the first quarter of 1944 by as much as

¹⁷¹ Crane., p. 29.

¹⁷² Levine., p. 29.

¹⁷³ Ibid., p. 73.

¹⁷⁴ Ibid., p. 115.

¹⁷⁵ Greenfield., p. 113.

¹⁷⁶ Ibid.

10%.”¹⁷⁷ Speer pegged the total figure of reduced armament manufacturing at 9 or 10% overall with aircraft 31% below forecasts and 35% under budget for tanks.¹⁷⁸ The actual production of major weapons for Nazi Germany from 1939 to 1945 is as follows:

1939	1940	1941	1942	1943	1944	1945
Aircraft						
8295	10,247	11,776	15,409	24,807	39,807	7540
U - Boats						
15	40	196	244	270	189	0
Tanks						
1300	2200	5200	9200	17,300	22,100	4400
Artillery						
2000	5000	7000	12,000	27,000	41,000	.. ¹⁷⁹

A cursory review might suggest that despite all Allied efforts, there was no advantage to strategic bombardment. Upon further examination, however, several relevant factors are revealed.

Like most countries, by the late 1930's Germany was emerging from the Great Depression. Rearmament provided employment for millions of destitute workers. After victory in Poland, Norway, and France, “a new found wealth of material goods - the spoils of war,”¹⁸⁰ had flooded into the Reich, mainly from soldiers returning home on leave. After further conquests and with the whole of continental Europe at her disposal, Germany was fast

¹⁷⁷ Ibid.

¹⁷⁸ Overy., p. 5.

¹⁷⁹ Ibid., pp. 331,332.

¹⁸⁰ Whiting., p. 64.

becoming an economic super-power.¹⁸¹ The German Gross National Product was not a fixed number where output was already being maximized. If that were the situation, it would be quite easy to measure the effect of strategic bombing by comparing actual production versus the absolute limit. The reality was that industrial potential was far greater than that being utilized. The influx of raw materials, notably high-grade ore and oil from Eastern Europe, expanded the German war making capability far beyond its peacetime limit.

Full worker mobilization was very late in coming and was not mandated until after the defeat at Stalingrad. In a speech given on February 18, 1943, Goebbels proclaimed, "it was ridiculous to have more than six million workers still turning out consumer products, 1.5 million German women still toiling as maids and cooks, and 100,000 restaurants and amusement centers still functioning almost as they had in 1939."¹⁸² Incredibly enough, not until August 24, 1944 was it dictated that, "in order to obtain a maximum output from home front workers, all government and private business offices will go on a sixty hour week. Civilians will further help to carry the soldier's load by temporarily giving up paid vacations."¹⁸³ While American B-24's were being built one every sixty-nine seconds around the clock, Speer stepped up production but rarely put factories on a double shift.¹⁸⁴ The underlying problem was that Hitler, "did not consider economics as central to the war effort. Rather he stuck to the view that social character - willpower, resolve,

¹⁸¹ Overy., p. 130.

¹⁸² Whiting., p. 141.

¹⁸³ Georges Blond, The Death of Hitler's Germany. (New York: Pyramid Books, 1948), p.68.

¹⁸⁴ Greenfield., p. 114.

endurance - was the prime mover; weapons mattered only to the extent that they could be married to the moral qualities of the fighting man”¹⁸⁵

It is not possible to quantify the potential of a dynamic, expanding economic system in wartime. Therefore, a specific percentage being claimed as destroyed due to bombing cannot be accurately measured. Fortunately, there is enough surviving documentation to demonstrate that vital resources were redirected. The increase in the number of aircraft manufactured was truly dramatic especially in the teeth of Allied efforts to destroy the industry. A closer look, however, is necessary in order to comprehend the full situation.

During the early years of the conflict, medium bombers, Stukas, and fighters were produced in roughly equal numbers for the purpose of supporting the entire spectrum of Wehrmacht operations. It has already been noted that at the beginning of Barbarossa (June 22, 1941) the German Army had the support of well over 50% of the whole German air force. At the end of 1943, the German Army had the support of less than 20% of the whole German air force.¹⁸⁶ The percentage drop illustrates the decision to concentrate manufacturing resources on fighter aircraft to counter the growing American daylight raids. Single engine Messerschmitt 109s and Focke Wulf 190s were much cheaper and easier to build than two engine bombers. Goering supposedly told Albert Speer, the Minister of Production, that Hitler would only ask how many aircraft are available, not what kind.

The tactical impact over the Russian battlefield was immense. The Luftwaffe surrendered a large measure of the undisputed air superiority it had won in the early stages of the campaign. German fighters could still challenge the increasing numbers of Soviet fighters and light bombers but

¹⁸⁵ Overy., p. 206.

¹⁸⁶ Harris., p. 113.

were unable to effectively disrupt Soviet offensive actions. The obsolete Stukas were outfitted with heavy cannon and given the role of tank destroyers but diminished as a threat to troop concentrations, bridges, and supply bottlenecks. Fewer bombers meant that German troops could rely less on support missions. At the same time, Soviet aircraft could increase the frequency of their attacks as well as accumulate and transport men and equipment with less German harassment. The reduced Luftwaffe tactical presence, especially in light and medium bombers, signaled a shift in air superiority by late 1943. By D-Day, June 6, 1944, the Allies commanded the air over the battlefield in both western and eastern Europe.

In other areas of military hardware, by 1944 one-third of all artillery production consisted of anti-aircraft guns; the anti-aircraft effort absorbed 20% of all ammunition produced, one-third of the output of the optical industry, and between half and two-thirds of the production of radar and signal equipment.¹⁸⁷ The manpower situation also worsened. The estimates for 1944 were that 2,000,000 Germans were engaged in anti-aircraft defense, in repairing shattered factories and in generally cleaning up the destruction.¹⁸⁸

It was impossible to launch concentrated, sustained offensives when so much of a belligerent's military assets are in a defensive posture. It can never be known what Germany was capable of producing, but there is no doubt that the rate of growth in manufacturing was negatively affected by the air campaign. Dislocation and dispersal of factories and the loss of critical machinery was as devastating as was the reduced productivity of the work force.

¹⁸⁷ Ibid., p. 131.

¹⁸⁸ Ibid.

War industries, however, were too diverse and large to be eliminated in a single stroke. When the ball bearing plants at Schweinfurt were attacked, there were adequate reserves of finished goods in inventory and enough unused floor space to minimize interruptions in the production schedule. But not even an infrastructure as well developed and defended as Germany's could withstand forever the increasing intensity of Allied raids.

A targeted city or factory normally quickly regained much of its output after a raid. It was discovered however, that recuperative capacity after multiple bombings diminished. Employees might flee the affected area or become casualties. Even if a facility was undamaged, it might still remain idle if suppliers providing vital components were incapable of making timely deliveries.

The cumulative and multi-faceted aspect of round the clock bombing mitigated against much of the increase in manufacturing. In 1944, 25,860 pursuit planes were constructed but, "in the same period the Luftwaffe put only 1200 of them into action. The rest were destroyed during transportation, bombed on the ground after delivery, or else could not be used for lack of runways or the fuel to get them into the air."¹⁸⁹ The man responsible for supplying planes to the Luftwaffe, Field Marshall Erhard Milch, protested strongly at the number of brand new aircraft standing on the factory airfields of Messerschmitt.¹⁹⁰ He ordered the relocation and concealment of all finished product but while on personal inspection tours was, "confronted again and again by smoking ruins."¹⁹¹ Not even the highest priority weapon system, the Vengeance missiles, could be safely

¹⁸⁹ Blond., p. 89. Please note that the number of planes constructed is less than that listed under footnote 138 because it only includes pursuit planes, not bombers or transport aircraft.

¹⁹⁰ Bekker., p. 513.

brought into action. The transportation system that delivered V-1s to the field was vulnerable, allowing only about one-third of all V-1s produced to reach launch sites.¹⁹²

It is far too simplistic to claim that the strategic air campaign against Germany was unsuccessful merely by demonstrating that a year to year acceleration in major armaments production was attained. A great power enmeshed in a global conflict requires an integrated industrial base with each component working seamlessly to support the war effort. By V-E Day, it was not yet possible to completely destroy a modern infrastructure nor all of a segment of one, but a high tonnage of heavy conventional bombs dropped with relative precision onto non-civilian and commercial targets was capable of severely degrading military capability.

IMPACT ON CIVILIANS

German non-combatants suffered ever greater privations as the war progressed. Initial German reaction was very similar to that of Londoners. A substantial percentage of the civilian population fled the target areas for rural safe havens. Those who remained attempted to adjust. "Some people never got used to the horrors; others came to accept them with a kind of numbness that surprised even themselves."¹⁹³ Many city dwellers slept in work clothes so they could quickly dash from their home, to the shelter, and then to their place of employment (assuming it still existed). Public entertainment closed early and people went to bed right after dinner in order to get as much undisturbed sleep as possible. Food was cooked during the

¹⁹¹ Ibid.

¹⁹² Frank W. Heilenday, V 1 Cruise Missile Attacks Against England: Lessons Learned and Lingering Myths From World War II. (Santa Monica, California: Rand, 1995), p. 6.

day in case gas lines were ruptured during the night and water was collected in bathtubs acting as private reservoirs. Eventual shortages of basic necessities and minor luxuries spurred innumerable creative substitutions. Some who fled returned to their homes, “because they missed the special camaraderie that developed among those under the bombs. It was horrific, and I know it may sound foolish to say this, but people were never so friendly or so good again.”¹⁹⁴ Another survivor confided to her diary that, “her homesickness for Berlin, its fatalism, its generosity, its toughness, gets more and more acute.”¹⁹⁵

Over time, the sense of excitement and novelty gave way to a much more pessimistic outlook. Fifteen months after the firestorm, one Hamburg resident wrote, “there is hardly a town still left intact and yet one becomes indifferent even to these atrocious ravages. For days we have had no water; traveling is out of the question; nothing can be bought; one simply vegetates.”¹⁹⁶ The head of the Lutwaffe’s Fighter Command, Adolf Galland, suffered a similar change in attitude. Immediately following the Hamburg raid, he noted that, “the Allies had proved that extermination raids of strategical importance on the territory of the Reich were possible.”¹⁹⁷ Less than six months later, he ordered a shift in priorities away from defending against the nighttime forays of the British bombers to concentrating on the daylight attackers. He understood that the former were more numerous, at least to the end of 1943, and inflicted a greater hardship on the civilian

¹⁹³ Whiting., p. 148.

¹⁹⁴ Ibid. , p.146.

¹⁹⁵ Ibid.

¹⁹⁶ Mathilde Wolff-Monckeberg. On the Other Side: To My Children, From Germany 1940 - 1945. (London, England: Peter Owen Limited, 1979), p.96.

¹⁹⁷ Galland., p. 205.

population, but the American precision raids were of greater consequence to industry.¹⁹⁸

Instead of preparing civilians for a deterioration of their living standards, the Nazis made bold statements bragging that no bombs would ever touch the Reich. After the number and ferocity of attacks mounted, "Berliners, after being marooned for three and four hours at a time in the middle of the night in their drafty, damp cellars, began showing up late for work in the mornings, pasty-faced, and red-eyed and acting snappish and bad-tempered."¹⁹⁹

According to Richard Overy, productivity suffered greatly "as in the Ford plant in Cologne, in the Ruhr, where absenteeism rose to 25% of the workforce for the whole of 1944. Even those who turned up for work were listless and anxious. We did not get enough sleep and were very tense," noted several survivors.²⁰⁰ Just as in London, continuous air raid alarms and the stress of being under the threat of annihilation was most difficult for "children and frail old people who suffered disproportionately," recorded diarist Mathilde Wolff-Monckeberg.²⁰¹

The euphoria of easy victory during the first three years of war was replaced by the dread of area bombing. It was the R.A.F. that shattered that daydream with a vengeance.²⁰² Life for civilians degenerated to such a low level that the people became interested only in survival.²⁰³ A major cause of the sullen mood on the German home front was the physical damage inflicted upon the cities. American soldiers approaching the Reich's capital in late spring 1945 wrote letters home noting that it was "covered by a thick haze,

¹⁹⁸ Ibid., p. 228.

¹⁹⁹ Oechsner., p. 207.

²⁰⁰ Overy., p. 133.

²⁰¹ Wolff-Monckeberg., p. 38.

²⁰² Oechsner., p. 211.

²⁰³ Whiting., p. 149.

mostly smoke from the fires that were still smoldering. Buildings that we thought were undamaged were merely hollow shells and the interiors had been completely gutted by fire and bomb blast. Those that had not burned were leveled either by bomb or artillery fire.”²⁰⁴ Every town of any consequence shared the fate of Berlin. Downtown districts, “were filled with rubble, with the signpost that had borne their name lying overturned among piles of plaster.”²⁰⁵

The Nazis placed a high priority during the opening stages of the struggle on removing the scars left by bombing. In contrast to London, where rebuilding was postponed until the end of the war, repair work began immediately after a raid.²⁰⁶ Initially, restoration was relatively easy to accomplish due to the small size of the attacks. By December 1941, eyewitnesses noted that, “owing to the speed with which the German authorities work to remove signs of damage, it now is extremely difficult to discover any traces of it in a city of Berlin’s dimensions.”²⁰⁷ It is important to remember that the Blitz basically transpired over a three and one-half month period with raids becoming lighter and less frequent. The bombing campaign against Germany lasted much longer, involved a far greater tonnage of bombs dropped and intensified as the war progressed. Three and one-half years after the Allied aerial counter offensive began, there was not “a house still standing that did not have some type of damage either by fire, bomb, or shell. Life in Berlin had practically ceased to exist.”²⁰⁸

²⁰⁴ Howard H. Peckham, and Shirley A. Snyder, ed. Letters From Fighting Hoosiers. (Bloomington, Indiana: Indiana War History Commission, 1948), p. 209.

²⁰⁵ Blond., p. 133.

²⁰⁶ Oechsner., p. 214.

²⁰⁷ Ibid.

²⁰⁸ Peckham., p. 210.

THE ISSUE OF MORALE

Both the Luftwaffe and Bomber Command had begun their campaigns of strategic bombing with the primary goal of breaking the morale of the civilian population. It was believed that the indiscriminate destruction of urban areas would create such a backlash among the masses, that pressure would be brought to bear upon political leaders to end the war.

The morale of combat troops exposed to strategic bombing has not been thoroughly studied due to the infrequent occasions in which observable results have occurred. The heavy bombers were rarely employed in tactical situations but when they were, the impact was overwhelming. Ninety days before D-Day, Bomber Command and the Army Air Corps were ordered to institute an interdiction campaign against the French rail system. The purpose was to isolate the upcoming Normandy battlefield from any form of reinforcement and resupply. The bulk of the Panzer divisions in the West were concentrated near the Pas de Calais in anticipation of where Hitler believed to be the most logical landing point for the coming invasion. Eisenhower encouraged the ruse by establishing a mythical army, commanded by General Patton, directly across from the narrowest point between France and England. It was critical that the Panzers should not be allowed to move south and west to threaten the real landing sites. The heavy bombers were extremely effective at destroying bridges and marshalling yards and did in fact paralyze the French transportation system throughout all of northwestern France. By late May, 1944, French railway traffic had declined to 55% of the January figure and down to 30% by D-Day.

Destruction of the bridges over the Seine completed the isolation of the battlefield. By July, 1944 only 10% of the rolling stock dispatched to Normandy successfully reached the Wehrmacht in comparison to the quantity shipped only six months earlier.²⁰⁹

An even more brutal display was code named Operation Cobra. Six weeks after D-Day, the Allies were struggling to breakout of the beachheads. The bocage countryside had impeded progress and negated the decided Allied advantage in mobility and numbers. German tanks were slower but much more heavily armed and armoured, thus perfectly suited for defense. In order to clear a path onto open terrain, a massive strike by strategic bombers was ordered. The target area was comparatively small in size and began immediately forward of the American front lines. Over one thousand, five hundred B-17s and B-24s pounded the German defensive positions in a raid lasting less than one hour. According to the German commander at the scene, "70% of his troops were either dead, wounded, or had a nervous breakdown."²¹⁰ The psychological effect was astonishing. One of the most experienced divisions in the Wehrmacht, the Panzer Lehr, simply melted away under the iron rain. American soldiers collected dazed and confused survivors and encountered no resistance anywhere in the target area.

In the cities however, a defense could be erected against the bombers. Deep shelters protected the majority of citizens from physical harm. Flak, searchlights, smoke and decoy fires disrupted the aim of the bombardiers and fighters harassed and destroyed the attackers. Some commentators claimed that British morale was sustained during the Blitz even among the victims in Coventry. Historian Constantine FitzGibbon stated, "it became

²⁰⁹ Keegan., p. 347.

²¹⁰ Galland., p. 288.

evident that none of the punishment taken had affected by one iota the national determination to withstand aggression.”²¹¹ Similarly in Germany, even after four months of major night raids on Berlin and the disaster in Hamburg, author Peter Calvocoressi believed that “morale broke in neither city.”²¹² Other sources though, paint a far more ambiguous picture.

Japanese diplomats stationed in Berlin offer a valuable insight into the general mood of civilians. In coded messages, they referred to “moments of general panic, such as after the Hamburg raid, and an increasing apathy among the German populace as the fortunes of war turned against Berlin.”²¹³ As early as Rudolf Hess’ mysterious flight to England in May 1941, Nazi party officials noted, “a not insignificant decline of popular optimism.”²¹⁴

But as the war dragged on, it became impossible to conceal the extent of the crisis. The horror stories from evacuees fleeing the bombed out cities spread by word of mouth. The sight of hundreds of American aircraft bold enough to attack in broad daylight directly contradicted the hopelessly optimistic broadcasts from the Propaganda Ministry. In the hardest hit cities, a new plague was unleashed upon the hapless survivors. Both Cologne and Hamburg, “faced the menace of droves of vicious rats, grown strong by feeding on the corpses that were left unburied within the rubble as well as the potatoes and other food supplies lost beneath the broken buildings.”²¹⁵

Those who left sometimes returned to the site of their former home not out of loyalty to the Nazi Party or with a renewed sense of optimism but to

²¹¹ FitzGibbon. London's Burning. Introduction.

²¹² Calvocoressi., p. 520.

²¹³ Stephen Garrett. Ethics and Airpower in World War II: The British Bombing of German Cities. (New York, New York: St. Martin's Press, 1993). P. 165.

²¹⁴ Earl R. Beck. Under the Bombs. (Lexington, Kentucky: University Press of Kentucky, 1986). P. 9.

²¹⁵ Ibid., p. 76.

protect what little was left. If the only relic of their previous life was a bomb crater, at least there was a place to rebuild if the war ever ended.

One measure of the rising despondency among the German people is a comparison of the birth rates for German women before and during the war. Unfortunately, many records were destroyed or lost during the bombing and subsequent land battles. Fortunately, there are several 'mood reports' compiled by Party bureaucrats that did survive. For the Nazis, it was considered crucial for German women of childbearing age to produce as many offspring as possible. Continuous surveys were undertaken to judge the desire of fertile women to reproduce. It was discovered that as the war progressed, most urban females rejected the idea of bearing additional children. Survival for adults was difficult enough and was believed to be almost impossible for newborns. The degradation of basic hygiene among the ruins and the difficulty in procuring enough food and adequate shelter consumed much of the strength otherwise required to deliver and care for an infant. There was also the distinct possibility that a child would grow up without a father as the list of German men killed or captured grew into the millions. It is not possible to accurately ascertain the drop in birth rates but according to extant documents the situation was serious enough to warrant the attention of the Nazi hierarchy.²¹⁶

The problem with studying morale is that "it is a word without scientific meaning."²¹⁷ Losses can be measured in men killed, wounded, or captured and in the number of aircraft damaged or destroyed. Determining the status of the morale of non-combatants is much more difficult. In an attempt to somehow quantify the concept, the United States government commissioned

²¹⁶ Ibid., p. 86.

²¹⁷ Harrisson., p. 290.

postwar surveys to ascertain German wartime morale. "It was found that 38% of the respondents thought the war was already lost by January 1942."²¹⁸ By the end of 1942, opinion research showed that although most people still believed Germany would win the war, there was growing uneasiness.²¹⁹ Defeat at El Alamein in November 1942 and at Stalingrad in February 1943, no doubt worsened the feeling of impending doom. An internal secret service report in spring 1944 noted the mood in both rural and urban areas as being one of, "interest only in survival. Almost no one believed that the bombing offensive could be stopped or that anything short of a miracle could save Germany."²²⁰ When asked after hostilities had concluded, "what was the hardest thing for civilians during the war, 91% said bombing."²²¹

The death of 600,000 citizens, the almost total destruction of every major industrial city, and the millions of sons, fathers, and relatives killed in combat caused deep depression among many of those lucky enough to still be alive. Despite all the negatives, resistance from fanatical S.S. units continued until almost every square mile of German territory was physically occupied by the Allies. Winston Churchill believed that, "even if all the towns of Germany were rendered largely uninhabitable, it does not follow that the military control would be weakened or even that war industry could not be carried on."²²² Americans living in Germany before the declaration of war noted that, "Berlin contains few important military objectives and it would be

²¹⁸ Overy., p. 305.

²¹⁹ Whiting., p. 140.

²²⁰ Ibid., p. 140.

²²¹ Overy., p. 132.

²²² Levine., p. 32.

possible to flatten out all of them without really affecting Germany's war effort."²²³

Neither the British or the Nazis specified exactly how to determine if progress was being made in breaking the fortitude of the enemy. No one quite knew how to express themselves; how, for instance, to show defeatism, should one actually feel defeated. There is no reality mechanism, no bridge from fantasy to achievement.²²⁴ British politics offered the electorate both a far right Fascist and far left Communist Party but both had very small memberships and were considered too radical for consideration by the mainstream. Despite the obvious pain and resultant bitterness and despair, "there was no one to canalize this sensation of abandonment and misery into the sort of mass uprisings which Hitler had hoped his bombing would produce."²²⁵ There was no individual or organized group capable of offering a viable political alternative, and the democratic process was de facto frozen for the duration of the conflict. Both the United States and England decided to continue supporting the same leaders until victory was complete.

It is of interest to note the apparent reversal of roles between the democracies and the totalitarian governments. During the war, British and American citizens both allowed a far greater concentration of power to the state than had been previously thought possible. Individual rights were willingly surrendered and the fate of the nation was entrusted to the military. Draconian measures unthinkable in peacetime were willingly accepted. The rationing of almost every consumer product from food to automobile tires was instituted. Government boards assumed control of a large percentage of the manufacturing base and arbitrarily decided what was to be built. The

²²³ Oechsner., p. 216.

²²⁴ Harrisson., p. 94.

draft was quickly expanded to cover a larger age group and strict censorship was imposed on the public, the media, and even letters sent home. These unimaginable intrusions were seen as a necessary accommodation to save Western civilization. In return, the tacit agreement was that the government would prosecute the war effort as expediently as possible with the highest regard for the lives of its servicemen. It was also understood that the true status of the conflict would be faithfully reported as close to real time as possible. The populace appreciated the need for security and certainly did not want to jeopardize the safety of their loved ones at the front but it was expected that news should be accurate and forthcoming.

Once the democracies were finally committed, a deep reservoir of goodwill existed that was drawn upon to withstand the necessary sacrifices. A high percentage of U.S. and British draft age men volunteered to serve in the armed forces. Stories abound of boys too young to be inducted or those who failed their physical examinations pursuing surreptitious means in order to be accepted for duty. Civilians displayed their support and enthusiasm by volunteering for service organizations, cutting back dramatically on their lifestyles, and buying war bonds. Most adults worked extended hours and gave up vacations, holidays, and even weekends. There is little evidence of coupon ration cheating or a black market. Interviews with adults who lived during the war years indicate that they felt most people were willing to sacrifice some material comforts for the common goal of winning the war.

In stark contrast was the conduct of the governments of the Axis powers. Goebbels was the most recognized propaganda minister but not the only one. Mussolini and the Japanese War Cabinet also twisted and omitted facts when they were inconsistent with the party line. Axis military triumphs were held

up as an example of the superiority of the nation over its enemies. Defeats created a whole new lexicon of ambiguous terms. A retreat became a “strategic withdrawal” and a rout was a “bold move to a more easily defended position”. There are many examples in which the real situation was deliberately distorted or completely ignored. As allied bombers expanded the size and frequency of their attacks, even the most fanatical Nazi realized that defensive efforts were failing and therefore, damage and casualties were increasing.

Japanese civilians surely must have shared the same glum feeling as they watched American warships, some of which had been reported on more than one occasion to have been sunk, bombard their homeland. Even a totalitarian regime depends to some degree on a measure of popular support if it expects its citizens to place their lives at risk.

Unfortunately for the Germans, political options had been non-existent since Hitler consolidated his grip on power in 1933. The fact was that people in the Nazi police state were not in a position to influence national will as much as in a democracy.²²⁶ The all-consuming struggle to secure adequate food and warm shelter made political resistance, the last thing on the minds of those living under the hail of bombs.²²⁷

The term ‘morale’ is far too ambiguous and not subject to rigorous enough quantification to justify the expenditure of blood and treasure in pursuit of obliterating it. Likewise, vengeance was inadequate as a guiding military strategy. During the Blitz, Londoners expressed, “almost no bitterness or resentment towards the enemy. References to the Germans are

²²⁶ Crane., p. 103.

²²⁷ Overy., p. 132.

of a good-humored, joking kind.”²²⁸ In Germany, downed aviators, “were the objects of much curiosity” and “most men captured in these rural areas say they were treated with the natural kindness one finds in most country dwellers.”²²⁹ Goering had ordered that no R.A.F. man was to be unfairly treated while he was in the hands of the Luftwaffe and thousands of ex-prisoners will testify that these orders were faithfully obeyed.²³⁰ Not even Hitler could inspire the vast majority of Germans to seek revenge against those who bombed their cities into rubble. There was some abuse of Allied aircrews but, “these shootings were not carried out by the Luftwaffe, who were normally responsible for R.A.F. prisoners, but by the SS”²³¹

As time passed, fear gradually rose to dominate the lives of the German and Japanese citizenry. The word can be defined as apprehension or dread and is especially applicable when involving the ultimate unknown, death. Douhet predicted that the fear of being bombed would be so intense that future conflicts would be of very short duration. One way fear can be detected is by noting a change in behavior consistent with placing survival above all other needs. Humans can be both motivated into action by fear or forced to constrain themselves. The British tolerated the destruction of their great cities due to the fear of a greater evil, the invasion of their homeland. The Nazis displayed the same reaction declaiming that, “if Germany is conquered, then you will all be deported as slave labor to Siberia.”²³² As disaster threatened, Goebbels worked to inculcate the feeling that the only

²²⁸ Harrisson., p. 116.

²²⁹ Martin Middlebrook, The Nuremberg Raid. (New York: William Morrow and Company, 1974), p. 271.

²³⁰ Ibid., pp. 267,268.

²³¹ Ibid., p. 267.

²³² Blond., p. 131.

way to avert being overrun by the enemy was to stick by Hitler.²³³ Not even the censorship of a totalitarian regime could suppress the stories and rumors of German atrocities toward Russian civilians and prisoners. One survivor summed up the feeling of many stating that as the Soviets advanced closer to Germany, "one thing is clear to all of us: a Russian break-through would mean disaster. Then there'll be nothing left but to take poison."²³⁴ Certain death or slavery at the hands of the Communists was worse than the privations endured by the Germans, even the possibility of being killed by strategic bombing. The reaction of the majority of non-belligerents became demoralized but still continued on. It was more tolerable to be bombed and starved by the Allies then raped and shot by the Russians. As long as any hope remained that the Americans and British would occupy Germany, civilians remained wherever they felt comparatively secure and did everything they could to survive. When that possibility ceased to exist, a mass exodus to the protection of Western armies ensued.

The undefined and undefinable idea of morale was usurped by a more base and far more effective motivator: fear. Over half a century after the end of World War II, fear is still the keystone of global military security. The advent of nuclear arms finally scared mankind enough to impose self-discipline on even our darkest desires for power, chaos, and destruction. The knowledge that one bomb can wipe off the face of the Earth an entire city is indeed frightening but is exactly the reality that was, and is, required to keep the peace among the great powers. In two world wars separated by only twenty-one years, 'civilized' men inflicted an estimated 46,000,000 deaths

²³³ Calvocoressi., p. 530.

²³⁴ Wolff-Monckeberg., p. 77.

upon each other and probably wounded the same number.²³⁵ Being vaporized in a mushroom cloud or dying a slow death due to radiation poisoning is too horrible to contemplate. It is the overriding sense of fear that keeps the peace.

The six years of World War II provided the opportunity to test the theory of strategic aerial warfare. The need for greater accuracy and explosive power was demonstrated first by the Germans and then by the Western Allies. Atomic weapons represented only a difference of degree not in kind. Their development and deployment made possible the fulfillment of the post-World War I prophets; an offensive action aimed at civilian populations with the deliberate intent to kill non-combatants and destroy property for the purpose of shortening war. After an extensive period of experimentation in Europe, 'conventional' bombing achieved discernable results but failed to end great power conflicts. Nuclear warheads delivered via strategic air forces, however, finally proved Douhet correct.

²³⁵ Britannica Macropaedia., pp. 1008, 1044.

THE ISSUE OF MORALITY

The moral aspect of strategic bombing generates the most controversy. Present day authors have liberally criticized both British and American efforts to “wage war from 20,000 feet.” Critics contend that randomly dumping high explosives, incendiaries, and atomic bombs upon civilians and cities was and is immoral. Wars are still to be fought away from the centers of civilization and contested between groups of armed men. The destruction of German cities by British nighttime area bombing raids was deemed brutal and counterproductive. Especially barbaric and unnecessary was the attack on the militarily insignificant city of Dresden. A medieval jewel of architecture and mostly wooden buildings, Dresden experienced a firestorm almost as devastating as Hamburg’s. The raid was conducted when the war in Europe was essentially over and the main railway station was crowded with refugees fleeing the rapidly approaching Red Army.

Even harsher in his condemnation of the U.S. Army Air Corps is Michael Sherry. He believes that operations over Japan were conducted with little or no regard to specific military targets. Supposedly, the United States fell in love with the new technology of strategic air weapons and completely lost sight of the suffering endured by the victims. Reconnaissance photos were incapable of detailing the level of death and hardship being inflicted upon those on the ground. Out of touch with the consequences of their actions, the Americans continued to blast and burn the home islands without remorse, constraint, or a guiding strategy.

Another of Sherry’s premises is that the entire concept of strategic aerial bombardment was irrational. In both Europe and Japan, the original concept

was to deploy high altitude, four engine aircraft that utilized sophisticated aiming mechanisms to ensure precision accuracy. The higher a bomber could fly, the safer it would be from anti-aircraft fire and from most fighters. The Norden bombsight was necessary in order to concentrate ordnance exactly on target. Due to the failure to perform as envisioned, Sherry asserts that the entire effort lacked a strategic focus and was therefore an unreasonable course of action. B-17 and B-24 pilots and bombardiers dumped their payload across the German countryside and were no better than their area bombing British brethren. Defensive smokescreens and the nearly constant cloudy weather, especially in the winter, made a mockery of ostensibly accurate daylight attacks.

Over Japan, the even higher ceiling B-29 was nearly useless as a weapon because of the newly discovered jetstream and the havoc its tornadic winds created. By switching to low level area bombing night attacks, the futility of U.S. doctrine became fully exposed. Sherry also argues that the reason Japan was destroyed was because Americans were racists. Joining Sherry in his condemnation is John Dower. Dower claims that, "the Allied struggle against Japan exposed the racist underpinnings of the European and American colonial structure. Japan did not invade independent countries but colonial outposts."²³⁶ Supposedly, Americans hated the Japanese more than the Germans. The end result was a policy of extermination toward the former – a war without mercy. Dower states that the conduct of the war in the Pacific was somehow more brutal and vicious because the Japanese were of a different race. Dower bolsters his thesis by presenting a plethora of racist and negative documentation. Included are motion picture portrayals of

²³⁶ John W. Dower. War Without Mercy: Race and Power in the Pacific War. (New York: Pantheon Books, 1986). P. 5.

Japanese as monkeys and sub-humans, editorial cartoons with buck tooth, eyeglass wearing short people, and media accounts of no holds barred combat in the South Pacific. The crowning piece of evidence is the fact that only Japan was subjected to atomic bomb attack, not Germany.

Unfortunately, it is not possible to quantify which enemy was hated more. For every reference to 'Jap' and 'yellow peril,' there was a 'Kraut' and 'Hun' threatening Europe. Approximately 120,000 Japanese-Americans were interred on the West Coast after Pearl Harbor but anti-German sentiment also was very strong. Every American of German descent could not be interred however, because there were too many. There are numerous first hand accounts of families no longer speaking German and being ridiculed even in Indiana. There was a great deal of anger directed towards Japan during the conflict since it was they, not the Germans, who attacked American soil without a declaration of war. No doubt that stereotypical epithets and slurs were aimed against the Japanese but to claim as fact that Japan was more hated is impossible to verify.

There are other aspects of Dower's argument, however, that can be repudiated with facts. Neither China nor Korea were Western colonies and yet both were victims of Japanese aggression. If Americans hated all people of Asian descent, then why did the U.S. help Chiang Kai-shek battle the Communists and Japan? The answer is that it was in the best interests of America to confront both communism and fascism. Filipinos and U.S. soldiers fought and died together to defend Bataan and Corregidor and later to liberate the Philippines. Certainly there must have been some degree of affinity for Asian countries in order for America to commit blood and treasure for the defense of China and the liberation of Burma and the Philippines.

Within the context of strategic bombing, the B-29 was designed to be a high altitude, precision bomber. It was only after almost two years in the field that the jetstream finally proved to be too disruptive for the new aircraft to be deployed in its original mode. Allied intelligence had known since at least the 1923 Tokyo earthquake that Japanese cities were easily combustible. Still, the original intent was to precision bomb Japan's war machine. If the weather eliminated the option of precision bombing, then the choice was either to firebomb at low altitude or do nothing. If destroying Japanese cities and demonstrating the fallibility of the ruling military regime would shorten the war, perhaps it was not an unreasonable course of action considering the circumstances of the time. It would be beneficial if modern revisionists would offer plausible options that could have been employed during the war. Authors living safely in a peaceful and secure world made possible by those they criticize could greatly bolster their position if they would propose and discuss alternative solutions for World War II commanders and leaders.

An additional fact to consider when debating the theory of race hate as the basis for military operations against Japan, is the distribution of leaflets over cities warning residents to flee before the next raid. B-29s dropped blizzards of Japanese language flyers notifying civilians of the targets that would soon be attacked and imploring them to leave.²³⁷ Similar occurrences in Europe have not been documented.

It is also true that America was benevolent in victory. Instead of exterminating the Japanese in death camps and by starvation, food and other assistance was generously provided at the end of hostilities. The Emperor was not even deposed; only required to renounce his divinity. Regarding

²³⁷ Ronald Schaffer. Wings of Judgment: American Bombing in World War II. (New York: Oxford University Press, 1985) p. 141-142.

Dower's assertion that race hate dictated that the atom bomb was dropped only on Japan, reference to a time line is adequate to refute his argument. Germany capitulated during the first week of May, 1945. It was not until July 16, 1945 that "the first atomic weapon had been successfully detonated at Alamogordo in the New Mexico desert."²³⁸ Nuclear weapons were still being developed by the end of the war in Europe and therefore, could only be used in the Pacific.

The most criticized figure is of course, 'Bomber' Harris. He is considered so overzealous in pursuit of area bombing that detractors believe him to be cruelly inhuman. John Keegan states that strategic bombing, "was certainly not fair play" and that "the British people had chosen not to acknowledge that they had descended to the enemy's level."²³⁹ Keegan does concede that the bombing campaign effectively drained two million productive workers out of armaments manufacturing.²⁴⁰ In his own defense, Harris claims that policy was already articulated before he was given command. The mission of Bomber Command was to inflict as much harm upon the Nazis as possible while absorbing as few losses as absolutely possible. The only way for Britain to strike back after the fall of France was via the air. Daylight bombing was far too perilous for a country of such limited financial and manpower resources and thus was best left to the vastly richer United States. Radar and other navigational aids were far too primitive in the early 1940's to offer accurate targeting data. Aiming at targets close to prominent geographic features or at the center of built-up urban centers was the best method by which to improve accuracy. Great Britain had no other option if it wanted to contribute to the effort to defeat Hitler: bomb at night using the best

²³⁸ John Keegan., p. 482.

²³⁹ John Keegan., p. 361.

technology available, or do nothing. Without doubt, the latter was unacceptable.

Of the contemporary critics reviewed, not one has offered a practical solution that would have solved Great Britain's dilemma. Was Winston Churchill to stand by idly from September, 1940 to D-Day June 1944 while his country was attacked and its citizens killed in their homes? Could any elected official in a democratic society ignore the anguished cries of his fellow countrymen to do something, anything, to alleviate the suffering? It is a fact that Britain could not sustain the losses inherent in a campaign of more accurate daylight bombing. Would it have been a more moral course of action if Bomber Command operated during the day and therefore sustained higher losses of aircrews? The families of those men who survived but might not have if bombing was conducted without the protective cover of night, might disagree. Of the two million workers diverted to the anti-aircraft system, how many fewer tanks and guns were built that would have been encountered on the battlefield? How many soldiers were saved by the sacrifice of the R.A.F.? What was the moral thing to do and what wasn't? It is far too easy to claim the high ground when someone else was forced to make the hardest of all decisions; who lives and who dies.

Ronald Schaffer offers another perspective. He believes that the moral issue of strategic bombing extends to more than attacks on cities and civilians to include damage "to artifacts of civilization such as libraries, cathedrals, monasteries and famous works of art."²⁴¹ He notes that moral constraints among the belligerents almost invariably bowed to military necessity but that there was substantial dispute over what military necessity

²⁴⁰ Ibid.

²⁴¹ Schaffer., Introduction, xii.

meant. Yes there were racist American attitudes towards both the Japanese and Germans. Both countries were seen as threats to civilization and their leaders as evil incarnate. Yet, the desire to shorten the war seemed to supersede personal attitudes and beliefs. Eisenhower, the Supreme Allied Commander in Europe said, "I am always prepared to take part in anything that gives real promise to ending the war quickly."²⁴² President Roosevelt issued letters asking for information that "would satisfy his purposes – to bring about surrender."²⁴³ President Truman observed about the atomic bomb, "it seems to be the most terrible thing ever discovered, but it can be made the most useful."²⁴⁴ Even Curtis LeMay remarked in his memoirs, "that if a nuclear weapon shortened the war by a single week, it probably saved more lives than it destroyed."²⁴⁵ The cold and hard attitudes of the time offend the sensibilities of modern historians but contemporary authors must remain cognizant of the environment in which decisions were made. The British and American officers, political leaders and aircrews were not blood thirsty, immoral killers bent on destroying the world for their private gain. They were people living under the most extraordinary pressure imaginable applying all their talents in attempting to win a world war and reinstate the peace.

The impact of the strategic bombing campaign has clearly been articulated. The Axis powers were forced to reallocate their resources to defend themselves against the British and American air attacks. The manufacture of weaponry, its deployment, and especially the fuel to power it was disrupted and eventually almost entirely eliminated. By the end of the

²⁴² Ibid., p.84.

²⁴³ Ibid., p. 89.

²⁴⁴ Ibid., p. 174.

²⁴⁵ Ibid., p. 152.

conflict in Japan, Douhet had been wholly vindicated that command of the air was the first and most important prerequisite for any military enterprise.

Despite the positive accomplishments, some feel that the entire concept was wrong. The problem with condemning strategic air warfare as immoral is that value judgements are necessary. The old 'social contract' inferred that killing a young, physically fit soldier in the field is acceptable but a civilian in his home is not. It was also agreed that the very young, elderly, and women are off limits to the horrors of actual combat and only purely military targets can be attacked. The airplane forced a change in the philosophy of armed conflict. Total war now extended beyond the sea and land battles of the past. No country, no person is safe from the reach of an enemy. The paradigm of combat in specific places among trained professionals is now obsolete. If great powers engage again in total war, complete annihilation of the participants becomes a distinct possibility, if not a certainty. Adhering to a strict code of conduct is an anachronism and the old moral arguments are irrelevant.

The secret of flight and the construction of nuclear weapons cannot be unlearned or wished away. Death is the same whether by conventional weaponry or inflicted by an atomic bomb. What is truly upsetting is the removal of much of the range of human emotions from the decision to wage war. Morality has been supplanted by a very basic choice: pursue a great power war and run the very real risk of being destroyed, or find alternative means to resolve conflicts. Some form of moral philosophy underlies almost all human endeavors but within the context of military doctrine, has been replaced by the desire to survive. The real debate is whether to proceed forward or return to a pre-1945 conventional military posture. If the latter is

chosen, nuclear weapons and the means to deliver them will be eliminated.

Under such a scenario, the complete spectrum of human emotions will return to its role as arbiter for deciding which path individual nations should pursue in search for national security. In a perfect world, all parties would agree to the best path for peace and prosperity and embark united on the trip.

Utopian ideals however, do not sufficiently address the base nature of man.

Unfortunately, greed, violence, and the lust for power are also part of our character. It would be pure folly to remove the straight jacket that we have imposed upon ourselves.

There have been wars since 1945 but not a total war among the great powers. The bombing and death of civilians was horrible in World War Two. The incineration of Dresden, Hamburg, and Tokyo was truly gruesome and unnatural. Fortunately, two positive benefits have arisen. The first is that the democracies triumphed over tyranny. The second is that total war can never be unleashed again. The cold horror of strategic bombing was instrumental in bringing both benefits to fruition.

Obviously the death of nine million people during the First World War was not enough to convince our species to resort to other means in addressing international differences. During World War Two, could the death of one or two million people less have been enough to change human behavior? It is a moot question. What has been realized is that strategic bombing not only shortened the conflict by destroying military capabilities but also left a legacy so terrible that it cannot be allowed to be repeated. Has morality been served? The end justified the means.

The Zeppelin and Gotha air raids on London during the course of the Great War, left an indelible mark on the psyche of several visionary military commanders. It was hoped that the next war would be of short duration as the mass bombing of vulnerable cities would quickly fracture the resolve of the opponent's home front, forcing political leaders to sue for peace. The Blitz was the initial large scale experiment testing whether the systematic and prolonged aerial bombardment of a basically undefended urban area was enough to decide the outcome of a great power conflict. This experiment was unsuccessful. The three and one-half months of the Blitz was found to be too short of a time span to eliminate Great Britain as a belligerent solely by a conventional air campaign. It was discovered that German bombers delivered an inadequate weight and number of bombs over too scattered a geographic range to cause much lasting harm. In reaction to the attacks, the British flocked to shelters thereby greatly reducing the actual number of casualties. The Blitz killed thousands and spread privation throughout England but the alternative of permitting the Nazis to invade their island home was considered worse than the suffering they endured.

Britain, and later the United States, initiated the second phase of the process when they counterattacked German cities and industry. Heavier ordnance and larger payloads delivered more frequently and in the case of the Americans, far more accurately, had a greater impact. Over ten times as many German civilians were killed and almost every city of consequence was severely damaged. Despite an increase in the quantity of weapons manufactured by Germany, the number of ships, tanks, and planes delivered

to and utilized on the battlefield was dramatically lowered especially after night time navigational aids were perfected and long range daylight fighter escorts were employed.

German non-combatants adjusted very much in the same manner as the British even though eventually, prolonged exposure to repeated attacks brought wholesale destruction to the Third Reich. The fear of being killed by an ideologically opposed enemy however, was greater than the discomfort of living under the iron rain. Even after three and one-half years of increasingly intense raids, German civilians did not rise in rebellion against their government. There is evidence that productivity suffered as the campaign progressed but the idea of attacking civilian morale was proven to be a dead end on the evolutionary path of strategic bombing.

It can be reasonably concluded that there were some positive contributions to the Allied war effort as a result of strategic bombing. The Nazis were forced to redirect critical manpower and resources away from the Eastern front to protect the homeland. This movement allowed the Russians to more easily gain tactical air superiority over the vast battlefields in the east. Although armament manufacturing increased during most of the conflict, it became much more difficult to transport and employ weapons with the rail and oil processing systems substantially reduced. Three and one-half years of around the clock attacks gradually wore out the Luftwaffe by killing or grounding its best pilots. Like most previous great power wars, the outcome of World War II was decided at the front where young men endeavored to kill each other as efficiently as possible. The German war machine, especially the Wehrmacht, spent itself on the steppes and in the cities of Russia. There are a plethora of other factors and considerations but

the majority of the killing occurred in the east. Strategic bombing in Europe assisted the Allies to victory but it was not the sole means of winning the war.

During the initial application of Douhet's theory, there were two conspicuous differences between what was postulated and what was observed. Douhet did not believe that defense against bomber attack would be possible much less effective. Fortunately for Great Britain, Fighter Command was created and deployed as much for offensive operations as for defense. Both the RAF and Luftwaffe enjoyed considerable success in daylight interceptor missions. Fighters were so successful that Great Britain and Germany were forced to bomb at night after incurring unsupportable losses during the day. Even American aircraft specifically designed for the task of daytime missions were found incapable of adequately defending themselves against determined fighter attacks. The second noticeable discrepancy during the war years in Europe was the fact that civilian morale failed to disintegrate. Douhet felt that the calamity of strategic bombing would cause panicky non-combatants to force their political leaders to sue for peace. British and German civilians were killed and wounded and survivors were adversely affected but in a very general sense, the populace in both countries somehow 'muddled through.' It was the development and deployment of nuclear weapons that finally vindicated Douhet's faith in the bomber.

Douhet explicitly stated that a bomb needed to completely destroy an area within a radius of five hundred meters. No such conventional weapon existed during the time of World War II in Europe. It was the successful completion of the Manhattan Project that made possible the fruition of pre-war prophecies. The precise guidance and destructiveness of nuclear

warheads attained the level necessary to threaten the viability of our species. The need to survive, and the fear that we might not, was enough to finally convince humanity to disdain total war as an option in international relations. The first tangible proof of the fulfillment of strategic bombing's destiny was the end of hostilities with Japan. The invasion of Japan proper, and the estimated 1,000,000 American casualties, was avoided. The Japanese were also saved from the mass suicide that they so willingly committed in every other battle in the Pacific theater. The second benefit was the halt of Russian expansion at the agreed upon borders in Western Europe. With U.S. soldiers clamoring to go home after V-E Day, a power vacuum existed. The British, French, and Germans were all too weak to impede the surge of the powerful and victorious Red Army. Only American possession of the bomb, and the Air Force to deliver it, restrained Stalin and permitted the West time to rebuild the shattered continent. It was no secret that Stalin was already very impressed by the Anglo-American bombing campaign against Germany. Churchill had sent a large number of photographic slides detailing the damage caused to German targets. During the Tehran Conference at the end of 1943, Stalin asked "innumerable and very intelligent questions about American long-range bombers."²⁴⁶ He had made several formal requests for British and American four-engine heavy bombers but was refused.

The atomic bomb was the final portion of the equation needed to validate Douhet's theory. The European strategic bombing campaign was not by itself capable of achieving the full potential envisioned by airpower advocates. The efforts and sacrifice of the people involved however laid the groundwork for a new realization in military and security considerations. Perhaps the best

²⁴⁶ David Holloway. Stalin and the Bomb. (London, England: Yale University Press, 1994). P. 234.

summation comes from Martin Middlebrook. Commenting on the costly R.A.F. night raid on Nuremberg he stated, "maybe the memory of Coventry, Dresden and Hiroshima lives on. Harris and the Lancaster and the Halifax crews who flew to Nuremberg helped develop the attitude that mankind can no longer afford all-out world wars. History may one day conclude that this was their greatest achievement."²⁴⁷

²⁴⁷ Middlebrook., p. 312.

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